

1985



LIGHT

ruck

SPECIFICATION BOOK

FOREWORD

3161

CW 220

This booklet contains service specifications for the 1985 F-150 — F-350, Ranger, Bronco, Bronco II and E-150 — E-350 vehicles. For quick reference, this booklet is organized by general topics, such as Powertrain, Chassis, Electrical Systems and Body. Each of these general topics is then further subdivided into specific categories. For example, the Chassis topic is subdivided into Brakes, Steering, Suspension and Driveaxles. The index identifies each of the categories and content within each category.

The specifications contained in this booklet were in effect at the time this booklet was approved for printing. Ford Motor Companies reserve the right to discontinue models at any time, or to change specifications or design, without notice and without incurring obligation.

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Vehicle Identification

This section explains the various labels and vehicle identification number codes that identify vehicle components (such as engine), features (such as trim) and miscellaneous information (such as model year and assembly plant). The following charts identify the major driveline components for each vehicle line.

DRIVELINE COMPONENTS

Ranger 4x2 Pickup with Payload Pkg. No. 1 & 2200 lb. Standard Rear Axle

| Engine | Transmission | Rapid-Spec Codes | Axle Ratios | | | |
|----------------|----------------|------------------|-------------|------|---------------|---------------|
| | | | 49 States | | California(1) | High Altitude |
| | | | 3.08 | 3.45 | 3.45 | NA |
| 2.0L 1V I-4 | 4-Speed Manual | 99C&44X | Std | Opt | — | — |
| 2.3L 1V I-4 | Automatic | 99A&44G | — | Std | Std | — |

| Axle Availability & Rapid-Spec Code: | | | | | | |
|--------------------------------------|-----------|-----|-----|-----|---|---|
| Standard | 2200 Lbs. | X72 | X74 | X74 | — | — |

(1) Engine requires California Emission System, Rapid-Spec Code 422.

Vehicle Identification

DRIVELINE COMPONENTS — CONT'D

Ranger 4x2 with 2700 lb. or 3200 lb. Rear Axle

| Engine & Model Application | Trans-mission | Rapid-Spec Codes | Axle Ratios | | | | | | | | | | |
|-------------------------------|--------------------------|------------------|-------------|--------|------|------|---------------|------|------|------|---------------|------|------|
| | | | 49 States | | | | California(1) | | | | High Altitude | | |
| | | | 3.08 (2) | 3.45 | 3.73 | 4.10 | 3.08 (2) | 3.45 | 3.73 | 4.10 | 3.45 | 3.73 | 4.10 |
| 2.0L 1V I4 Pickups | 4-Speed Manual | 99C& 44X | — | Std(4) | Opt | — | — | — | — | — | — | — | — |
| | 5-Speed Manual Overdrive | 99C& 445 | — | — | Std | — | — | — | — | — | — | — | — |
| 2.3L 1V I-4 Pickups | 4-Speed Manual | 99A& 44X | — | Std | Opt | — | — | Std | Opt | — | Std | Opt | — |
| | 5-Speed Manual Overdrive | 99A& 445 | — | — | Std | — | — | — | Std | — | — | Std | — |
| | Automatic | 99A& 44G | — | Std(4) | Opt | — | — | Std | Opt | — | — | — | — |
| 2.3L 1V I-4 Chassis Cab | 4-Speed Manual | 99A& 44X | — | — | Std | — | — | — | Std | — | — | Std | — |
| 2.8L 2V V-6 Pickups | 4-Speed Manual | 99S& 44X | Std | Opt | Opt | — | Std | Opt | Opt | — | — | Std | — |
| | 5-Speed Manual Overdrive | 99S& 445 | — | Std | Opt | — | — | Std | Opt | — | Opt | Std | — |
| | Automatic | 99S& 44G | Std | Opt | — | — | Std | Opt | — | — | Std | — | — |
| 2.8L 2V V-6 Chassis Cab | 4-Speed Manual | 99S& 44X | — | — | Std | — | — | — | Std | — | — | Std | — |

Axle Availability & Rapid-Spec Code:

| | | | | | | | | | | | | |
|------------------|-----------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Standard | 2700 lbs. | XB2 | XB4 | XB6 | (3) | XB2 | XB4 | XB6 | (3) | XB4 | XB6 | (3) |
| Traction-Lok | 2700 lbs. | — | XF4 | XF6 | (3) | — | XF4 | XF6 | (3) | XF4 | XF6 | (3) |
| Standard (5) | 3200 lbs. | — | — | (3) | — | — | — | (3) | — | — | (3) | — |
| Traction-Lok (5) | 3200 lbs. | — | — | (3) | — | — | — | (3) | — | — | (3) | — |

(1) Engine requires California Emission System, Rapid-Spec Code 422.

(2) Not available with Traction-Lok axle.

(3) Rapid-Spec Code not available at time of printing.

(4) Late availability with base Payload Package.

(5) Only on Chassis Cab with Payload Package No. 3

Vehicle Identification

DRIVELINE COMPONENTS — CONT'D

F-150 4x2 — Cont'd

| Engine & Model Application | Transmission | Rapid-Spec Codes | Axle Ratios | | | | | | |
|----------------------------|--------------------------|------------------|-------------|------|--------|---------------|--------|---------------|--------|
| | | | 49 States | | | California(1) | | High Altitude | |
| | | | 2.47 | 3.08 | 3.55 | 3.08 | 3.55 | 3.08 | 3.55 |
| 5.0L 2V V-8 SuperCab | 3-Speed Manual | 99F&44C | — | Std | — | — | — | — | — |
| | Automatic | 99F&44G | — | — | Std | — | — | — | — |
| | 4-Speed Manual Overdrive | 99F&44B | — | Std | — | — | — | — | — |
| | Automatic Overdrive | 99F&44T | — | — | Std | — | Std | — | Std |
| 5.8L 2V V-8 All Models | 4-Speed Manual | 99G&44F | — | — | Std(2) | — | — | — | Std(2) |
| | Automatic | 99G&44G | — | — | Std(3) | — | Std(3) | — | Std(3) |
| 5.8L HO 4V V-8 All Models | Automatic | (4)&44G | — | — | Std(3) | — | Std(3) | — | Std(3) |

| Axe Availability & Rapid-Spec Code: | | | | | | | | | |
|-------------------------------------|-----------|-----|-----|-----|-----|-----|-----|-----|-----|
| Standard | 3750 lbs. | X17 | X18 | X19 | X18 | X19 | X18 | X19 | X19 |
| Traction-Lok | 3750 lbs. | — | XH8 | XH9 | XH8 | XH9 | XH8 | XH9 | XH9 |

(1) Engine requires California Emission System, Rapid-Spec Code 422.

(2) 3.50 Axle Ratio.

(3) 3.50 Axle Ratio; 5.8L 2V V-8 Automatic Transmission combination will be replaced later in the model year by 5.8L HO 4V V-8 and Automatic Transmission.

(4) Rapid-Spec Code not available at time of printing.

Vehicle Identification

DRIVELINE COMPONENTS — CONT'D

F-250 4x2

| Engine & Model Application | Transmission | Rapid-Spec Codes | Axle Ratios | | | | | | | | |
|-------------------------------|--------------------------|------------------|-------------|---------|------|---------------|------|------|---------------|---------|------|
| | | | 49 States | | | California(1) | | | High Altitude | | |
| | | | 3.54 (2) | 3.73 | 4.10 | 3.54 (2) | 3.73 | 4.10 | 3.54 (2) | 3.73 | 4.10 |
| 4.9L 1V I-6(3) Pickup | 3-Speed Manual | 99Y& 44C | Std | — | — | Std | — | — | Std | — | — |
| | 4-Speed Manual | 99Y& 44F | Std | — | — | Std | — | — | Std | — | — |
| | Automatic | 99Y& 44G | Std | — | — | Std | — | — | Std | — | — |
| 5.0L 2V V-8 Pickup | 4-Speed Manual | 99F& 44F | Std | Opt | — | — | — | — | Std | Opt | — |
| | 4-Speed Manual Overdrive | 99F& 44B | — | Std | — | — | — | — | — | Std | — |
| | Automatic Overdrive | 99F& 44T | Std | Opt | — | Std | Opt | — | Std | Opt | — |
| 5.0L 2V V-8 Chassis Cab | 4-Speed Manual | 99F& 44F | — | Std (4) | — | — | — | — | — | Std (4) | — |
| | Automatic | 99F& 44G | — | Std (4) | — | — | Std | — | — | Std (4) | — |
| 5.8L 2V V-8 Pickup | 4-Speed Manual | 99G& 44F | — | Std (4) | Opt | Std | — | — | — | Std | Opt |
| | Automatic(5) | 99G& 44G | — | Std (4) | Opt | — | Std | Opt | — | Std | Opt |
| 5.8L HO 4V V-8 Pickup | Automatic(5) | (6)& 44G | Std | — | Opt | — | — | — | Std | — | Opt |

Axle Availability & Rapid-Spec Code:

| | | | | | | | | | | | |
|---|-----------|-----|-----|-----|-----|-----|-----|-----|-----|-----|--|
| Pickup with Payload Pkg. No. 1: | | | | | | | | | | | |
| — Standard | 4050 lbs. | X26 | — | — | X26 | — | — | X26 | — | — | |
| — Limited-Slip | 4050 lbs. | XB6 | — | — | XB6 | — | — | XB6 | — | — | |
| All Other F-250 (Under 8500 lbs.) GVWR Models: | | | | | | | | | | | |
| — Standard | 5300 lbs. | X23 | X24 | X22 | X23 | X24 | X22 | X23 | X24 | X22 | |
| — Limited-Slip | 5300 lbs. | XB3 | XB4 | XB2 | XB3 | — | XB2 | XB3 | XB4 | XB2 | |

- (1) Engine requires California Emission System, Rapid-Spec Code 422.
- (2) 3.55 with 4050 lbs. standard or limited-slip rear axle.
- (3) Only engine available with Regular Cab Payload Package No. 3.
- (4) Not available with limited-slip rear axle.
- (5) 5.8L 2V V-8-automatic transmission combination will be replaced later in the model year by 5.8L HO 4V V-8 and automatic transmission.
- (6) Rapid-Spec Code not available at time of printing.

Vehicle Identification

DRIVELINE COMPONENTS — CONT'D

RANGER 4x4

| Engine | Transmission | Rapid-Spec Codes | Axle Ratios | | | | | |
|----------------|--------------------------|------------------|-------------|------|------|---------------|------|---------------|
| | | | 49 States | | | California(1) | | High Altitude |
| | | | 3.08 | 3.45 | 3.73 | 3.45 | 3.73 | 3.73 |
| 2.3L 1V I-4 | 4-Speed Manual | 99A&44X | — | — | Std | — | Std | Std |
| | 5-Speed Manual Overdrive | 99A&445 | — | — | Std | — | Std | Std |
| 2.8L 2V V-6 | 4-Speed Manual | 99S&44X | Std | Opt | Opt | Std | Opt | Std |
| | 5-Speed Manual Overdrive | 99S&445 | — | — | Std | — | Std | Std |
| | Automatic | 99S&44G | — | Std | Opt | Std | Opt | Std |

Axle Availability & Rapid-Spec Code:

| | | | | | | | |
|--------------|-----------|-----|-----|-----|-----|-----|-----|
| Standard | 2700 lbs. | XB2 | XB4 | XB6 | XB4 | XB6 | XB6 |
| Traction Lok | 2700 lbs. | — | XF4 | XF6 | XF4 | XF6 | XF6 |

(1) Engine requires California Emission System, Rapid-Spec Code 422.

Vehicle Identification

BRONCO II

| Engine | Transmission | Rapid-Spec Codes | Axle Ratios | | | | |
|----------------|--------------------------|------------------|-------------|------|---------------|------|---------------|
| | | | 49 States | | California(1) | | High Altitude |
| | | | 3.45 | 3.73 | 3.45 | 3.73 | 3.73 |
| 2.8L 2V V-6 | 4-Speed Manual | 99S&44X | Std | Opt | Std | Opt | Std |
| | 5-Speed Manual Overdrive | 99S&445 | — | Std | — | Std | Std |
| | Automatic | 99S&44G | Std | Opt | Std | Opt | Std |

| Axle Availability & Rapid-Spec Code: | | | | | | | |
|--------------------------------------|--|-----------|-----|-----|-----|-----|-----|
| Standard | | 2500 lbs. | X42 | X44 | X42 | X44 | X44 |
| Traction-Lok | | 2500 lbs. | — | XD4 | — | XD4 | XD4 |

(1) Engine requires California Emission System, Rapid-Spec Code 422.

F-150 4x2

| Engine & Model Application | Transmission | Rapid-Spec Codes | Axle Ratios | | | | | |
|-------------------------------|--------------------------|------------------|-------------|------|------|---------------|------|---------------|
| | | | 49 States | | | California(1) | | High Altitude |
| | | | 2.47 | 3.08 | 3.55 | 3.08 | 3.55 | 3.08 |
| 4.9L 1V I-6 Regular Cab | 3-Speed Manual | 99Y&44C | Std | Opt | Opt | Std | — | — |
| | 4-Speed Manual | 99Y&44F | — | Std | Opt | Std | — | — |
| | 4-Speed Manual Overdrive | 99Y&44B | Std | Opt | Opt | Std | — | Std |
| | Automatic | 99Y&44G | — | Std | Opt | Std | Opt | — |
| | Automatic Overdrive | 99Y&44T | — | Std | Opt | Std | Opt | Opt |
| 4.9L 1V I-6 SuperCab | 3-Speed Manual | 99Y&44C | — | Std | Opt | Std | Opt | — |
| | 4-Speed Manual Overdrive | 99Y&44B | — | Std | Opt | Std | Opt | — |
| | Automatic | 99Y&44G | — | Std | Opt | Std | Opt | — |
| | Automatic Overdrive | 99Y&44T | — | — | Std | — | Std | — |
| 5.0L 2V V-8 Regular Cab | 3-Speed Manual | 99F&44C | — | Std | — | — | — | Std |
| | 4-Speed Manual Overdrive | 99F&44B | — | Std | — | — | — | — |
| | Automatic | 99F&44G | — | — | Std | — | — | — |
| | Automatic Overdrive | 99F&44T | — | — | Std | — | Std | — |

Vehicle Identification

DRIVELINE COMPONENTS — CONT'D

F-250 HD 4x2 (Over 8500 Lbs. GVWR)

| Engine | Transmission | Rapid-Spec Codes | Axle Ratios | | | | | | | | | |
|-----------------------|----------------|------------------|-------------|---------|---------|---------|------|----------------|------|---------|---------|---------------|
| | | | 49 States | | | | | California (1) | | | | High Altitude |
| | | | 3.07 | 3.54 | 3.73 | 4.10 | 3.07 | 3.54 | 3.73 | 4.10 | 3.54 | 4.10 |
| 4.9L 1V I-6 | 4-Speed Manual | 99Y& 44F | — | — | Opt (4) | Std (3) | — | — | Opt | Std | — | Std |
| | Automatic | 99Y& 44G | — | — | Opt (4) | Std (3) | — | — | — | — | — | Std |
| 5.8L 2V V-8 | 4-Speed Manual | 99G& 44F | — | — | Std | Opt (3) | — | — | — | — | — | Std |
| | Automatic | 99G& 44G | — | — | Std | Opt (3) | — | — | — | — | — | Std |
| 6.9L V-8 Diesel(2) | 4-Speed Manual | 991& 44P | Std | Opt (2) | — | Opt (2) | Std | Opt (2) | — | Opt (2) | Std (2) | Opt (2) |
| | Automatic(3) | 991& 44G | Std | Opt (2) | — | Opt (2) | Std | Opt (2) | — | Opt (2) | Std (2) | Opt (2) |
| 7.5L 4V V-8 | 4-Speed Manual | 99L& 44P | Std | Opt (2) | — | Opt (2) | Std | Opt (2) | — | Opt (2) | Std (2) | Opt (2) |
| | Automatic(5) | 99L& 44G | Std | Opt | — | Opt | Std | Opt | — | Opt | Std | Opt |

Axle Availability & Rapid-Spec Code:

| | | | | | | | | | | | |
|--------------|---------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|---------|
| Standard | 6250 lbs. | X31 | X33 | X34 | X32 | X31 | X33 | X34 | X32 | X33 | X32 |
| Limited-Slip | 6250 lbs. | — | XC3 | — | XC2 | — | XC3 | — | XC2 | XC3 | XC2 |
| Standard | 6300 lbs. (2) | — | X33 | — | X32 | — | X33 | — | X32 | X33 | X32 (3) |
| Limited-Slip | 6300 lbs. (2) | — | XC3 | — | XC2 | — | XC3 | — | XC2 | — | XC2 |

- (1) Engine requires California Emission System, Rapid-Spec Code 422.
- (2) 6300 lb. full floating rear axle included with manual transmission and either 6.9L V-8 diesel engine or 7.5L 4V V-8 gasoline engine. Also included with 6.9L V-8 diesel and automatic transmission.
- (3) Not available on Chassis Cab models.
- (4) Standard on Chassis Cab models.

Vehicle Identification

DRIVELINE COMPONENTS — CONT'D

F-350 4x2

| Engine & Model Application | Trans-mission | Rapid-Spec Codes | Axle Ratios | | | | | | | | | | |
|-----------------------------------|----------------|------------------|-------------|------------|---------|------------|---------------|---------|------|------------|---------------|---------|------------|
| | | | 49 States | | | | California(1) | | | | High Altitude | | |
| | | | 3.07 (4) | 3.54 | 3.73 | 4.10 | 3.07 (4) | 3.54 | 3.73 | 4.10 | 3.54 | 3.73 | 4.10 |
| 4.9L 1V I-6(5) Chassis Cab | 4-Speed Manual | 99Y& 44F | — | — | — | Std | — | — | — | — | — | — | Std |
| | Automatic | 99Y& 44G | — | — | — | Std | — | — | — | — | — | — | Std |
| 4.9L 1V I-6 Crew Cab | 4-Speed Manual | 99Y& 44F | — | — | Opt | Std | — | — | — | — | — | — | Std |
| 5.8L 2V V-8 All Pickups | 4-Speed Manual | 99G& 44F | — | Std (5) | Std (3) | Opt | — | — | — | — | — | — | Std |
| | Automatic | 99G& 44G | — | Std (5) | Std (3) | Opt | — | — | — | — | — | — | Std |
| 5.8L 2V V-8 Chassis Cab | 4-Speed Manual | 99G& 44F | — | Std (5)(2) | Std (3) | Opt (6)(2) | — | — | — | — | Std (5) | Std (3) | Opt (6) |
| | Automatic | 99G& 44G | — | Std (5)(2) | Std (3) | Opt (6)(2) | — | — | — | — | Std (5) | Std (3) | Opt (6) |
| 6.9L V-8 Diesel Regular Cab | 4-Speed Manual | 991& 44P | Std (3) | Opt (2) | — | Opt (6)(2) | Std (3) | Opt (2) | — | Opt (6)(2) | Std (2) | — | Opt (6)(2) |
| | Automatic | 991& 44G | Std (3) | Opt (2) | — | Opt (2) | Std (3) | Opt (2) | — | Opt (2) | Std (2) | — | Opt (2) |
| 7.5L 4V V-8 | 4-Speed Manual | 99L& 44P | Std (3) | Opt (2) | — | Opt (6)(2) | Std (3) | Opt (2) | — | Opt (6)(2) | Std (2) | — | Opt (6)(2) |
| | Automatic | 99L& 44G | Std (3) | Opt | — | Opt | Std (3) | Opt | — | Opt | Std | — | Opt |

Vehicle Identification

DRIVELINE COMPONENTS — CONT'D

F-350 4x2

| Engine & Model Application | Transmission | Rapid-Spec Codes | Axle Ratios | | | | | | | | | | | |
|---|--------------|------------------|-------------|------|------|------|---------------|------|------|------|---------------|------|------|--|
| | | | 49 States | | | | California(1) | | | | High Altitude | | | |
| | | | 3.07 | 3.54 | 3.73 | 4.10 | 3.07 | 3.54 | 3.73 | 4.10 | 3.54 | 3.73 | 4.10 | |
| Axle Availability & Rapid-Spec Code: | | | | | | | | | | | | | | |
| Single-Rear-Wheel Models: | | | | | | | | | | | | | | |
| — Standard | 6250 Lbs. | X31 | X33 | X34 | X32 | X31 | X33 | X34 | X32 | X33 | X34 | X32 | | |
| — Limited-Slip | 6250 Lbs. | — | XC3 | — | XC2 | — | XC3 | — | XC2 | XC3 | — | XC2 | | |
| — Standard(7) | 6300 Lbs. | — | X33 | — | X32 | — | X33 | — | X32 | X33 | — | X32 | | |
| — Limited-Slip(7) | 6300 Lbs. | — | XC3 | — | XC2 | — | XC3 | — | XC2 | XC3 | — | XC2 | | |
| Dual-Rear-Wheel Models: | | | | | | | | | | | | | | |
| — Standard | 7400 Lbs. | — | X43 | — | X42 | — | X43 | — | X42 | X43 | — | X42 | | |
| — Limited-Slip | 7400 Lbs. | — | X53 | — | X52 | — | X53 | — | X52 | X53 | — | X52 | | |
| — Standard(6) | 8200 Lbs. | — | — | — | X62 | — | — | — | X62 | — | — | X62 | | |

- (1) Engine requires California Emission System, Rapid-Spec Code 422.
- (2) Includes 6300 lb. full-floating rear axle with Single Rear Wheel models equipped with manual transmission and either 6.9L V-8 diesel engine or 7.5L 4V V-8 gasoline engine. Also included with 6.9L V-8 diesel engine with automatic transmission and 5.8L Chassis Cab.
- (3) Available only with Single Rear Wheel models.
- (4) Not available with Chassis Cab model
- (5) Available only with Dual Rear Wheel models.
- (6) Only axle available with Dual Rear Wheel Payload Package No. 2.

- (7) Engine requires Computer Control System, Power-Shift, Code 426.
- (8) 3.54 axle ratio.
- (9) Full 4V V-8 automatic transmission combination will be replaced later in the model year by 5.4L HD 4V V-8 and automatic transmission.
- (10) Round-Spot Codes not available at time of printing.

Vehicle Identification

DRIVELINE COMPONENTS — CONT'D

F-150 4x4

| Engine | Transmission | Rapid-Spec Codes | Axle Ratios | | | |
|-------------------|--------------------------|------------------|-------------|------|---------------|---------------|
| | | | 49 States | | California(1) | High Altitude |
| | | | 3.08(2) | 3.55 | 3.55 | 3.55 |
| 4.9L 1V I-6 | 4-Speed Manual | 99Y&44F | Std | Opt | Std | Std |
| | 4-Speed Manual Overdrive | 99Y&44B | Std | Opt | Std | Std |
| | Automatic | 99Y&44G | — | Std | Std | Std |
| 5.0L 2V V-8 | 4-Speed Manual | 99F&44F | — | Std | — | Std |
| | 4-Speed Manual Overdrive | 99F&44B | — | Std | — | Std |
| | Automatic | 99F&44G | — | Std | Std | Std |
| 5.8L 2V V-8 | 4-Speed Manual | 99G&44F | — | Std | — | Std |
| | 4-Speed Manual Overdrive | 99G&44B | — | Std | — | Std |
| | Automatic(3) | 99G&44G | — | Std | Std(2) | Std |
| 5.8L HO 4V V-8 | Automatic(3) | (4)&44G | — | Std | Std | Std(2) |

| Axle Availability & Rapid-Spec Code: | | | | | | |
|--------------------------------------|-----------|-----|-----|-----|-----|-----|
| Standard | 3750 Lbs. | X18 | X19 | X19 | X19 | X19 |
| Traction-Lok | 3750 Lbs. | XH8 | XH9 | XH9 | XH9 | XH9 |

- (1) Engine requires California Emission System, Rapid-Spec Code 422.
- (2) Not available with SuperCab model.
- (3) 5.8L 2V V-8 automatic transmission combination will be replaced later in the model year by 5.8L HO 4V V-8 and automatic transmission.
- (4) Rapid-Spec Code not available at time of printing.

Vehicle Identification

DRIVELINE COMPONENTS — CONT'D

F-250 4x4

| Engine | Transmission | Rapid-Spec Codes | Axle Ratios | | | | | |
|-------------------|----------------|------------------|-------------|------|---------------|------|---------------|------|
| | | | 49 States | | California(1) | | High Altitude | |
| | | | 3.55 | 4.10 | 3.55 | 4.10 | 3.55 | 4.10 |
| 4.9L 1V I-6 | 4-Speed Manual | 99Y&44F | Std | — | Std | — | Std | — |
| | Automatic | 99Y&44G | Std | — | Std | — | Std | — |
| 5.0L 2V V-8 | 4-Speed Manual | 99F&44F | Std | — | — | — | Std | — |
| | Automatic | 99F&44G | Std | — | Std | — | Std | — |
| 5.8L 2V V-8 | 4-Speed Manual | 99G&44F | — | Std | — | — | — | Std |
| | Automatic(3) | 99G&44G | — | Std | — | — | — | Std |
| 5.8L HO 4V V-8 | Automatic(3) | (4)&44G | Std(2) | Opt | — | — | Std(2) | Opt |

Axle Availability & Rapid-Spec Code:

| | | | | | | | |
|----------------|-----------|-----|-----|-----|-----|-----|-----|
| — Standard | 4050 lbs. | X26 | — | X26 | — | X26 | — |
| — Traction-Lok | 4050 lbs. | XB6 | — | XB6 | — | XB6 | — |
| — Standard | 5300 lbs. | — | X22 | — | X22 | — | X22 |
| — Limited-Slip | 5300 lbs. | — | XB2 | — | XB2 | — | XB2 |

(1) Engine requires California Emission System, Rapid-Spec Code 422.

(2) 3.54 axle ratio.

(3) 5.8L 2V V-8/automatic transmission combination will be replaced later in the model year by 5.8L HO 4V V-8 and automatic transmission.

(4) Rapid-Spec Code not available at time of printing.

Vehicle Identification

DRIVELINE COMPONENTS — CONT'D

F-250 HD (Over 8500 Lbs. GVWR) 4x4

| Engine | Transmission | Rapid-Spec Codes | Axle Ratios | | | | | |
|---|-------------------|------------------|-------------|------|---------------|------|---------------|------|
| | | | 49 States | | California(1) | | High Altitude | |
| | | | 3.54 | 4.10 | 3.54 | 4.10 | 3.54 | 4.10 |
| 5.8L 2V V-8 | 4-Speed Manual | 99G&44F | Std | Opt | — | — | — | Std |
| | Automatic | 99G&44G | Std | Opt | — | — | — | Std |
| 6.9L Diesel V-8(2) | 4-Speed Manual(3) | 991&44P | Std | Opt | Std | Opt | Std | Opt |
| | Automatic(3) | 991&44G | Std | Opt | Std | Opt | Std | Opt |
| 7.5L 4V V-8(4) | 4-Speed Manual(3) | 99L&44P | Std | Opt | Std | Opt | Std | Opt |
| | Automatic | 99L&44G | Std | Opt | Std | Opt | Std | Opt |
| Axle Availability & Rapid-Spec Code: | | | | | | | | |
| Standard | | 6250 Lbs. | X33 | X32 | X33 | X32 | X33 | X32 |
| Limited-Slip | | 6250 Lbs. | XC3 | XC2 | XC3 | XC2 | — | XC2 |

- (1) Engine requires California Emission System, Rapid-Spec Code 422.
- (2) 4.10 axle ratio recommended for optimum heater performance in severe cold weather and for high altitude, trailer towing and other performance oriented applications.
- (3) Models with 6.9L V-8 diesel, or with manual transmission and 7.5L 4V V-8 gasoline engine, have a 6300 lb. full-floating rear axle.
- (4) Recommended for models that will have second unit bodies with large frontal areas.

Vehicle Identification

DRIVELINE COMPONENTS — CONT'D

F-350 4x4

| Engine | Transmission | Rapid-Spec Codes | Axle Ratios | | | | | |
|-----------------------|-------------------|------------------|-------------|------|---------------|------|---------------|------|
| | | | 49 States | | California(1) | | High Altitude | |
| | | | 3.54 | 4.10 | 3.54 | 4.10 | 3.54 | 4.10 |
| 5.8L 2V V-8 | 4-Speed Manual | 99G&44F | — | Std | — | — | — | Std |
| | Automatic | 99G&44G | — | Std | — | — | — | Std |
| 6.9L Diesel V-8(2) | 4-Speed Manual(3) | 991&44P | Std | Opt | Std | Opt | Std | Std |
| | Automatic | 991&44G | Std | Opt | Std | Opt | Std | Std |
| 7.5L 4V V-8(4) | 4-Speed Manual(3) | 99L&44P | Std | Opt | Std | Opt | Std | Std |
| | Automatic | 99L&44G | Std | Opt | Std | Opt | Std | Std |

Axle Availability & Rapid-Spec Code:

| | | | | | | | |
|-----------------|-----------|-----|-----|-----|-----|-----|-----|
| Standard | 6250 Lbs. | X33 | X32 | X33 | X32 | X33 | X32 |
| Limited-Slip | 6250 Lbs. | XC3 | XC2 | XC3 | XC2 | — | XC2 |
| Standard(3) | 6300 Lbs. | X33 | X32 | X33 | X32 | X33 | X32 |
| Limited-Slip(3) | 6300 Lbs. | XC3 | XC2 | XC3 | XC2 | — | XC2 |

- (1) Engine requires California Emission System, Rapid-Spec Code 422.
- (2) Not available with Crew Cab models; 4.10 axle ratio recommended for optimum heater performance in severe cold weather, and for high altitude, trailer towing or other performance-oriented applications with other models.
- (3) Models with 6.9L V-8 diesel engine, or with manual transmission and 7.5L 4V V-8 gasoline engine, have a 6300 lb. full-floating rear axle.
- (4) Recommended for models that will have second unit bodies with large frontal areas.

Vehicle Identification

DRIVELINE COMPONENTS — CONT'D

Bronco

| Engine | Transmission | Rapid-Spec Codes | Axle Ratios | | | |
|-------------------|--------------------------|------------------|-------------|------|---------------|---------------|
| | | | 49 States | | California(1) | High Altitude |
| | | | 3.08 | 3.55 | 3.55 | 3.55 |
| 4.9L 1V I-6 | 4-Speed Manual | 99Y&44F | Std | Opt | Std | Std |
| | 4-Speed Manual Overdrive | 99Y&44B | Std | Opt | Std | Std |
| | Automatic | 99Y&44G | — | Std | Std | Std |
| 5.0L 2V V-8 | 4-Speed Manual | 99F&44F | — | Std | — | Std |
| | 4-Speed Manual Overdrive | 99F&44B | — | Std | — | Std |
| | Automatic | 99F&44G | — | Std | Std | Std |
| 5.8L 2V V-8 | 4-Speed Manual | 99G&44F | — | Std | — | Std |
| | 4-Speed Manual Overdrive | 99G&44B | — | Std | — | Std |
| | Automatic(2) | 99G&44G | — | Std | — | Std |
| 5.8L HO 4V V-8 | Automatic(2) | (3)&44G | — | Std | — | Std |

Axle Availability & Rapid-Spec Code:

| | | | | | |
|--------------|-----------|-----|-----|-----|-----|
| Standard | 3750 lbs. | X18 | X19 | X19 | X19 |
| Traction-Lok | 3750 lbs. | XB8 | XB9 | XB9 | XB9 |

- (1) Engine requires California Emission System, Rapid-Spec Code 422.
- (2) 5.8L 2V V-8/automatic transmission combination will be replaced later in the model year by 5.8L HO 4V V-8 and automatic transmission.
- (3) Rapid-Spec Code not available at time of printing.

Vehicle Identification

DRIVELINE COMPONENTS — CONT'D

E-150 Van/SuperVan & Club Wagon

| Engine | Transmission | Rapid-Spec Codes | Axle Ratios | | | | |
|----------------------|--------------------------|------------------|-------------|------|---------------|-----------|---------------|
| | | | 49 States | | California(1) | | High Altitude |
| | | | 3.00 | 3.50 | 3.00 | 3.50 | 3.50 |
| 4.9L 1V I-6 | 3-Speed Manual(2) | 99Y&44C | Std | Opt | — | Std | Std |
| | 4-Speed Manual Overdrive | 99Y&44B | Std | Opt | Opt(2) | Std | Std |
| | Automatic(2) | | Std | Opt | — | Std | — |
| | Automatic Overdrive | 99Y&44T | — | — | — | Std | — |
| 5.0L 2V V-8 | Automatic Overdrive | 99F&44T | — | Std | — | Std | Std |
| 5.8L 2V V-8 (4) | Automatic | 99G&44G | — | Std | — | Std(2)(3) | Std |
| 5.8L HO 4V V-8(4) | Automatic | (5)&44T | — | Std | — | Std(2)(3) | Std |

Axle Availability & Rapid-Spec Code:

| | | | | | | |
|--------------|-----------|-----|-----|-----|-----|-----|
| Standard | 3750 lbs. | X14 | X16 | — | X16 | X16 |
| Traction-Lok | 3750 lbs. | XH4 | XH6 | XH4 | XH6 | XH6 |

(1) Engine requires California Emission System, Rapid-Spec Code 422.

(2) Not available on Club Wagon.

(3) Not available with GVWR over 6000 lbs.

(4) 5.8L 2V V-8 will be replaced later in the model year by 5.8L HO 4V V-8.

(5) Rapid-Spec Code not available at time of printing.

Vehicle Identification

DRIVELINE COMPONENTS — CONT'D

E-250 Van/SuperVan

| Engine | Transmission | Rapid-Spec Codes | Axle Ratios | | | | | | |
|----------------------|---------------------|------------------|--------------|---------|---------|---------------|---------|---------------|---------|
| | | | 49 States | | | California(1) | | High Altitude | |
| | | | 3.55/3.54(2) | 3.73(3) | 4.10(3) | 3.55/3.54(2) | 4.10(3) | 3.55/3.54(2) | 3.73(3) |
| 4.9L 1V I-6 | 3-Speed Manual | 99Y& 44C | Std | — | — | Std | — | Std | — |
| | Automatic(4) | 99Y& 44G | Std | — | — | Std | — | Std | — |
| | Automatic Overdrive | 99Y& 44T | Std(3) | — | — | Std(3) | — | Std(3) | — |
| 5.0L 2V V-8 | Automatic Overdrive | 99F& 44T | Std | — | Opt | Std | Opt | Std | — |
| 5.8L 2V V-8(5) | Automatic | 99G& 44G | Std | Opt | — | Std | — | Std | Opt |
| 5.8L HO 4V V-8(5) | Automatic | (6)& 44G | Std | — | — | — | — | Std | — |

Axle Availability & Rapid-Spec Code:

Regular Van with Payload Pkg. No. 1

| | | | | | | | | | |
|----------------|-----------|-----|---|-----|-----|-----|-----|---|-----|
| — Standard | 4050 lbs. | X26 | — | X22 | X26 | X22 | X26 | — | X22 |
| — Traction-Lok | 4050 lbs. | XB6 | — | XB2 | XB6 | XB2 | XB6 | — | XB2 |

Regular Van with Payload Pkg. No. 2 & SuperVan

| | | | | | | | | | |
|----------------|-----------|-----|-----|-----|-----|-----|-----|-----|-----|
| — Standard | 5300 lbs. | X23 | (6) | X22 | X23 | X22 | X23 | (6) | X22 |
| — Traction-Lok | 5300 lbs. | XB3 | (6) | XB2 | XB3 | XB2 | XB3 | (6) | XB2 |

- (1) Engine requires California Emission System, Rapid-Spec Code 422.
- (2) 3.55 axle ratio for Regular Van with 4050 lb. rear axle; 3.54 axle ratio for Regular Van with 5300 lb. rear axle and all SuperVans.
- (3) Available only with 3.54 (5300 lbs.) rear axle.
- (4) Late availability.
- (5) 5.8L 2V V-8 will be replaced later in the model year by 5.8L HO 4V V-8.
- (6) Rapid-Spec Code not available at time of printing.

Vehicle Identification

DRIVELINE COMPONENTS — CONT'D

E-250 & E-350 Club Wagon/Super Wagon

| Engine & Model Applications | Transmission | Rapid- Spec Codes | Axle Ratios | | | | | | | | | | |
|-----------------------------------|--------------|-------------------------|-------------|------|------|------|---------------|------|------|---------------|------|------|------|
| | | | 49 States | | | | California(1) | | | High Altitude | | | |
| | | | 3.07 | 3.54 | 3.73 | 4.10 | 3.07 | 3.54 | 4.10 | 3.07 | 3.54 | 3.73 | 4.10 |
| 4.9L 1V I-6 E-250 | Automatic | 99Y& 44G | — | Std | — | Opt | — | — | — | — | Std | — | Opt |
| 4.9L 1V I-6 E-350 | Automatic | 99Y& 44G | — | — | — | Std | — | — | — | — | — | — | Std |
| 5.8L 2V V-8 E-250 | Automatic | 99G& 44G | — | Std | — | Opt | — | — | — | — | Std | — | Opt |
| 5.8L 2V V-8 E-350 | Automatic | 99G& 44G | — | — | Std | Opt | — | — | — | — | — | Std | Opt |
| 6.9L Diesel V-8 | Automatic | 99I& 44G | — | Std | — | Opt | — | Std | Opt | — | Std | — | Opt |
| 7.5L 4V V-8 | Automatic | 99L& 44G | Std | Opt | — | Opt | Std | Opt | Opt | Std | Opt | — | Opt |

Axle Availability & Rapid-Spec Code:

| | | | | | | | | | | | | |
|--------------|-----------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Standard | 6340 lbs. | X31 | X33 | X34 | X32 | X31 | X33 | X32 | X31 | X33 | X34 | X32 |
| Limited-Slip | 6340 lbs. | — | XC3 | — | XC2 | — | XC3 | XC2 | — | XC3 | — | XC2 |

(1) Engine requires California Emission System, Rapid-Spec Code 422.

Vehicle Identification

DRIVELINE COMPONENTS — CONT'D

F-350 Van/SuperVan & Parcel Delivery Van

| Engine | Trans-mission | Rapid-Spec Codes | Axle Ratios | | | | | | | | | | |
|-----------------------|-------------------|------------------|-------------|---------|---------|---------|---------------|---------|---------|---------------|---------|---------|---------|
| | | | 49 States | | | | California(1) | | | High Altitude | | | |
| | | | 3.07 | 3.54 | 3.73 | 4.10 | 3.07 | 3.54 | 4.10 | 3.07 | 3.54 | 3.73 | 4.10 |
| 4.9L 1V I-6 | 3-Speed Manual(2) | 99Y& 44C | — | — | — | Std | — | — | Std | — | — | — | Std |
| | Automatic | 99Y& 44G | — | — | — | Std | — | — | — | — | — | — | Std |
| 5.8L 2V V-8 | Automatic | 99G& 44G | — | — | Std (3) | Opt (4) | — | — | — | — | — | Std (3) | Opt (4) |
| 6.9L Diesel V-8(5) | Automatic | 991& 44G | — | Std | — | Opt (4) | — | Std | Opt (4) | — | Std | — | Opt (4) |
| 7.5L 4V V-8 | Automatic | 99L& 44G | Std (2) | Opt (4) | — | Opt | Std (2) | Opt (4) | Opt | Std (2) | Opt (4) | — | Opt |

Axle Availability & Rapid-Spec Code:

| | | | | | | | | | | | | |
|---------------------|-----------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Single Rear Wheels: | | | | | | | | | | | | |
| —Standard | 6340 Lbs. | X31 | X33 | X34 | X32 | X31 | X33 | X32 | X31 | X33 | X34 | X32 |
| —Limited-Slip | 6340 Lbs. | — | XC3 | — | XC2 | — | XC3 | XC2 | — | XC3 | — | XC2 |
| Dual Rear Wheels: | | | | | | | | | | | | |
| —Standard | 7400 Lbs. | — | X53 | — | X52 | — | X53 | X52 | — | X53 | — | X52 |
| —Limited-Slip | 7400 Lbs. | — | XE3 | XE4 | XE2 | — | XE3 | XE2 | — | XE3 | XE4 | XE2 |

(1) Engine requires California Emission System, Rapid-Spec Code 422.

(2) Not available with Dual Rear Wheels.

(3) Available (optionally) only with limited-slip rear axle in Dual Rear Wheel Models.

(4) Standard with Dual Rear Wheels.

Vehicle Identification

Safety Compliance Certification Labels

COMPLETE VEHICLES

The Safety Compliance Certification Label (examples below and on next page) is attached to the driver's door lock pillar.

(UNITED STATES)

| | | | | | | | |
|--|----------|----------------|-----------------|------|------|--------|--|
| MFD. BY FORD MOTOR CO. IN U.S.A. | | | | | | | |
| Date: | 8/82 | GVWR: | 7650 Lb/3470 Kg | | | | |
| Front GAWR: | 3050 Lb | Rear GAWR: | 5300 Lb | | | | |
| 1383 Kg | With | 2404 Kg | With | | | | |
| F78-15B | Tires | F78-15B | Tires | | | | |
| 15x5.5K | Rims | 15x5.5K | Rims | | | | |
| At 32 PSI Cold | | At 32 PSI Cold | | | | | |
| THIS VEHICLE CONFORMS TO ALL APPLICABLE FEDERAL MOTOR VEHICLE SAFETY STANDARDS IN EFFECT ON THE DATE OF MANUFACTURE SHOWN ABOVE | | | | | | | |
| Vehicle Identification No. 1FTBF25G5 FLA00000 | | | | | | | |
| Type | Truck | | | | | | |
| EXTERIOR PAINT COLORS | | | | | | DSO | |
| WB | Type GVW | Body | Trans | Axle | Tape | Spring | |

(CANADA)

| | | | | | | | |
|--|-------------|------|-------|------|--|-----|--|
| MFD. BY FORD MOTOR CO. OF CANADA LTD. | | | | | | | |
| Date: | GVWR: | | | | | | |
| Front GAWR: | Rear GAWR: | | | | | | |
| With | With | | | | | | |
| Tires | Tires | | | | | | |
| Rims | Rims | | | | | | |
| At PSI Cold | At PSI Cold | | | | | | |
| THIS VEHICLE CONFORMS TO ALL APPLICABLE FEDERAL MOTOR VEHICLE SAFETY STANDARDS IN EFFECT ON THE DATE OF MANUFACTURE SHOWN ABOVE | | | | | | | |
| Vehicle Identification No. | | | | | | | |
| Type Utilize Same Type Data as U.S.A. | | | | | | | |
| EXTERIOR PAINT COLORS | | | | | | DSO | |
| WB | Type GVW | Body | Trans | Axle | | | |

Vehicle Identification

SAFETY COMPLIANCE CERTIFICATION LABELS — CONT'D

COMPLETE VEHICLES — CONT'D

(QUEBEC)

FABR. AUX E-U PAR LA FORD MOTOR CO.

Date:
PNBE Avant:

PNBV:
PNBE Arriere:

Avec
Pneus
Jantes

A Lb/PO² A Froid

A Lb/PO² A Froid

CE VEHICULE EST CONFORME A TOUTES LES NORMES FEDERALES DE
SECURITE DES V.A. EN VIGUEUR A LA DATE DE FABR. INIQUEE CI-DESSUS.

N D'Ident. Du VEH.

Type

COULEUR

| | | | | | | | |
|--------|----------|------|--------|------|-------|---------|-------------|
| Empatt | Type/PSV | Carr | Transm | Pont | Bande | Ressort | 4 Comm Spec |
|--------|----------|------|--------|------|-------|---------|-------------|

FOR VEHICLES MFD. IN U.S.A. FOR QUEBEC, CANADA

(QUEBEC)

FABR. PAR FORD DU CANADA LIMITEE

Date:
PNBE Avant:

PNBV:
PNBE Arriere:

Avec
Pneus
Jantes

A LB/PO² A FROID

A LB/PO² A FROID

CE VEHICULE EST CONFORME A TOUTES LES NORMES FEDERALES DE
SECURITE DES V.A. EN VIGUEUR A LA DATE DE FABR. INIQUEE CI-DESSUS.

N D'Ident. Du VEH.

Type

COULEUR

| | | | | | | | |
|--------|----------|------|--------|------|-------|---------|-------------|
| Empatt | Type/PSV | Carr | Transm | Pont | Bande | Ressort | 4 Comm Spec |
|--------|----------|------|--------|------|-------|---------|-------------|

MADE IN CANADA

FOR VEHICLES MFD. IN CANADA FOR QUEBEC, CANADA



DECAL APPLIED TO ALL CANADIAN BUILT UNITS AND
ALL U.S.A. BUILT UNITS SOLD IN CANADA

Vehicle Identification

SAFETY COMPLIANCE CERTIFICATION LABEL — CONT'D

INCOMPLETE VEHICLES

The incomplete vehicle rating decal is installed on the driver's door lock pillar in place of the safety compliance certification label.

VEHICLE RATING DECAL

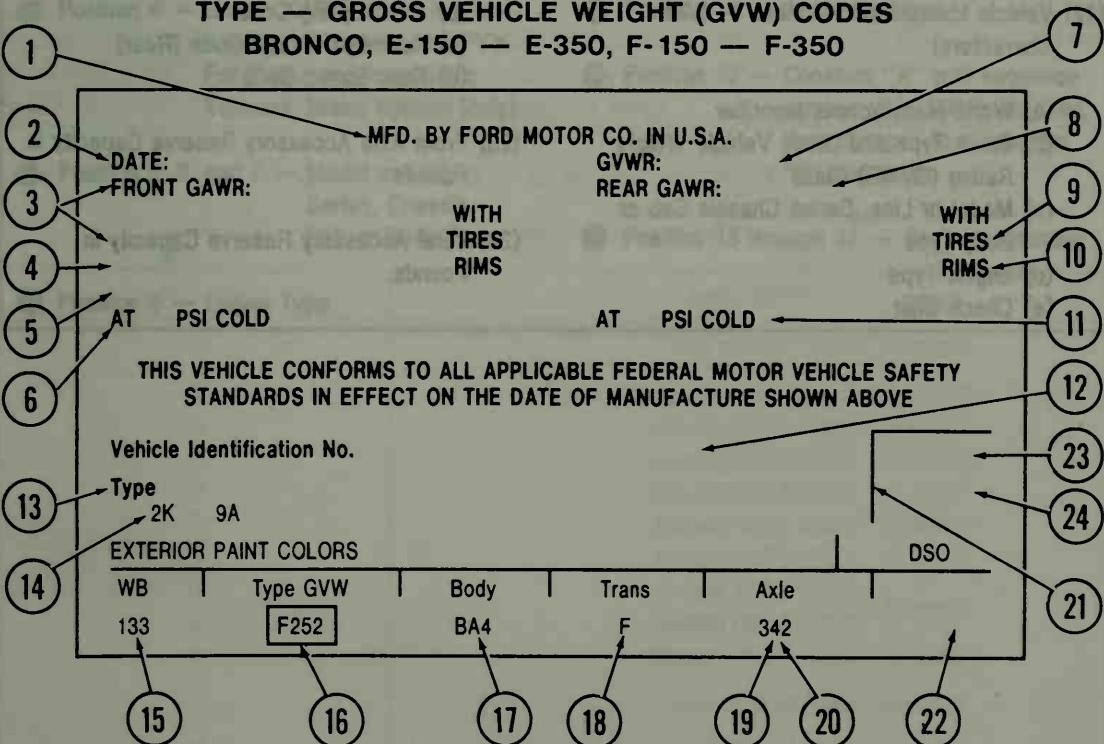
INCOMPLETE VEHICLE MANUFACTURED BY

GVWR: 3020 LB / 1369 KG

VEHICLE IDENTIFICATION NUMBER 1FTB25G5 FLA00000

| EXTERIOR PAINT COLORS | | 1C | 48 DSO | | |
|-----------------------|----------|------|--------|------|------|
| WB | TYPE-GVW | BODY | TRANS | AXLE | |
| 133 | F270 | AB4 | G | 38 | 1985 |

TYPE — GROSS VEHICLE WEIGHT (GVW) CODES BRONCO, E-150 — E-350, F-150 — F-350



Vehicle Identification

- | | |
|--|--|
| (1) Name and Location of Manufacturer | (f) Model Year |
| (2) Date of Manufacture | (g) Assembly Plant Code |
| (3) Front Gross Axle Weight Ratings in Pounds (LB) and Kilograms (KG) | (h) Sequential Serial Number |
| (4) Front Tire Size | (13) Type Vehicle |
| (5) Rim Size | (14) Exterior Paint Codes (two sets of figures designates a two-tone) |
| (6) Front Tire Cold PSI | (15) Wheelbase in Inches |
| (7) Gross Vehicle Weight Rating in Pounds (LB) and Kilograms (KG) | (16) Model Code and GVW |
| (8) Rear Gross Axle Weight Rating in Pounds (LB) and Kilograms (KG) | (17) Interior Trim, Seat and Body/Cab Type |
| (9) Rear Tire Size | (18) Transmission Code |
| (10) Rim Size | (19) Rear Axle Code |
| (11) Rear Tire Cold PSI | (20) Front Axle Code if so Equipped |
| (12) Vehicle Identification Number — (VIN Characters) | (21) District/Special Order Codes |
| (a) World Manufacturer Identifier | (22) Suspension Identification Codes |
| (b) Brake Type and Gross Vehicle Weight Rating (GVWR) Class | (a) Aux./Opt. Usage Code (Front) |
| (c) Model or Line, Series Chassis Cab or Body Type | (b) Front Spring Code |
| (d) Engine Type | (c) Aux./Opt. Usage Code (Rear) |
| (e) Check Digit | (d) Rear Spring Code |
| | (23) Front Axle Accessory Reserve Capacity in Pounds |
| | (24) Total Accessory Reserve Capacity in Pounds. |

Vehicle Identification

VEHICLE IDENTIFICATION NUMBER (VIN)

The vehicle identification number appears both on the Safety Compliance Certification Label and on a metal tab fastened to the instrument panel close to the windshield on the driver's side. The tab is visible from outside the vehicle. The following pages detail the information contained in the seventeen alphanumeric positions of the VIN.

NOTE: THE FOLLOWING CHARTS ARE FOR ALL VEHICLES, UNLESS OTHERWISE IDENTIFIED.

SAMPLE VIN NUMBER

1 F T B F 2 5 G 5 F L A 0 0 0 0 1
 1 2 3 4 5 6 7 8 9

- ① Position 1, 2, and 3 — Manufacturer, Make and Type (World Manufacturer Identifier)
- ② Position 4 — Brakes/GVWR Class for Ford-completed Trucks and MPV's. For Buses and Incomplete Vehicles, Brake System (only).
- ③ Position 5, 6, and 7 — Model or Line, Series, Chassis, Cab or Body Type
- ④ Position 8 — Engine Type
- ⑤ Position 9 — Check Digit
- ⑥ Position 10 — Model Year (Ford-completed vehicles)
- ⑦ Position 11 — Assembly Plant
- ⑧ Position 12 — Constant "A" until sequence number of 99,999 is reached, then changes to a constant "B" and so on
- ⑨ Position 13 through 17 — Sequence number — begins at 00001

Vehicle Identification

VEHICLE IDENTIFICATION NUMBER (VIN) CODES

**World Manufacturer Identifier
(VIN Positions 1, 2 and 3)**

1 F T B F 2 5 G 5 F L A 0 0 0 0 1

| VIN Code | Manufacturer | Make | Type |
|----------|------------------------------------|------|--|
| 1 F M | Ford Motor Company, USA | Ford | Multipurpose Passenger Vehicle (MPV) |
| 1 F T | Ford Motor Company, USA | Ford | Truck (Complete Vehicle) |
| 1 F D | Ford Motor Company, USA | Ford | Incomplete Vehicle (IV) |
| 1 F C | Ford Motor Company, USA | Ford | Basic Stripped Chassis |
| 1 F B | Ford Motor Company, USA | Ford | Bus |
| 1 F F | Ford Motor Company, USA | Ford | Motor Vehicle Equipment without Engine/Powertrain (Glider) |
| 2 F M | Ford Motor Company of Canada, Ltd. | Ford | MPV |
| 2 F T | Ford Motor Company of Canada, Ltd. | Ford | Truck (Complete Vehicle) |
| 2 F D | Ford Motor Company of Canada, Ltd. | Ford | Incomplete Vehicle |
| 2 F C | Ford Motor Company of Canada, Ltd. | Ford | Basic Stripped Chassis |
| 2 F B | Ford Motor Company of Canada, Ltd. | Ford | Bus |

**Brakes/GVWR Class
(VIN Position 4)**

1 F T B F 2 5 G 5 F L A 0 0 0 0 1

| GVWR Class | VIN Code |
|---|---|
| Hydraulic Brake System and Class A: Not greater than 3,000 pounds Class B: 3,001-4,000 pounds Class C: 4,001-5,000 pounds Class D: 5,001-6,000 pounds Class E: 6,001-7,000 pounds Class F: 7,001-8,000 pounds Class G: 8,001-8,500 pounds Class H: 8,501-9,000 pounds Class I: 9,001-10,000 pounds | A B C D E F G H J |
| Hydraulic Brake System and Class 3: 10,001-14,000 pounds Class 4: 14,001-16,000 pounds Class 5: 16,001-19,500 pounds | K L M |

Vehicle Identification

**Model or Line, Series, Chassis, Cab Type
(VIN Positions 5, 6 and 7)**

1FTB R10 C5FUA00001



| VIN Code | Line | Series | Chassis Type | Cab or Body Type | Vehicle Type |
|----------|-----------|----------|--------------|--------------------|--------------|
| R10 | Ranger | Standard | 4x2 | Regular Cab Pickup | Truck or IV |
| R11 | Ranger | Standard | 4x4 | Regular Cab Pickup | Truck or IV |
| R12 | Ranger | Standard | 4x2 | Chassis Cab | IV |
| U14 | Bronco II | Standard | 4x4 | Bronco II | MPV |

NOTE: One of the following optional exterior nameplates (indicating higher trim levels) may also be affixed to the vehicle in addition to the Ranger nameplate:

- XL
- XLT
- XLS

| VIN Code | | Line | Series | Chassis Type | Cab or Body Type | Vehicle Type (1) |
|------------|-------------|------------|--------|--------------|------------------------|------------------|
| Club Wagon | Super Wagon | | | | | |
| E11 | — | Club Wagon | E150 | 4x2 | Club Wagon | MPV |
| E21 | S21 | Club Wagon | E250 | 4x2 | Club Wagon/Super Wagon | MPV or Bus (a) |
| — | S31 | Club Wagon | E350 | 4x2 | Super Wagon | MPV or Bus (a) |

Memo: One of the following optional exterior nameplates (indicating trim levels) may also be affixed to the vehicle in addition to the Club Wagon nameplate:

- XL
- XLT
- (a) Excludes School Bus

Vehicle Identification

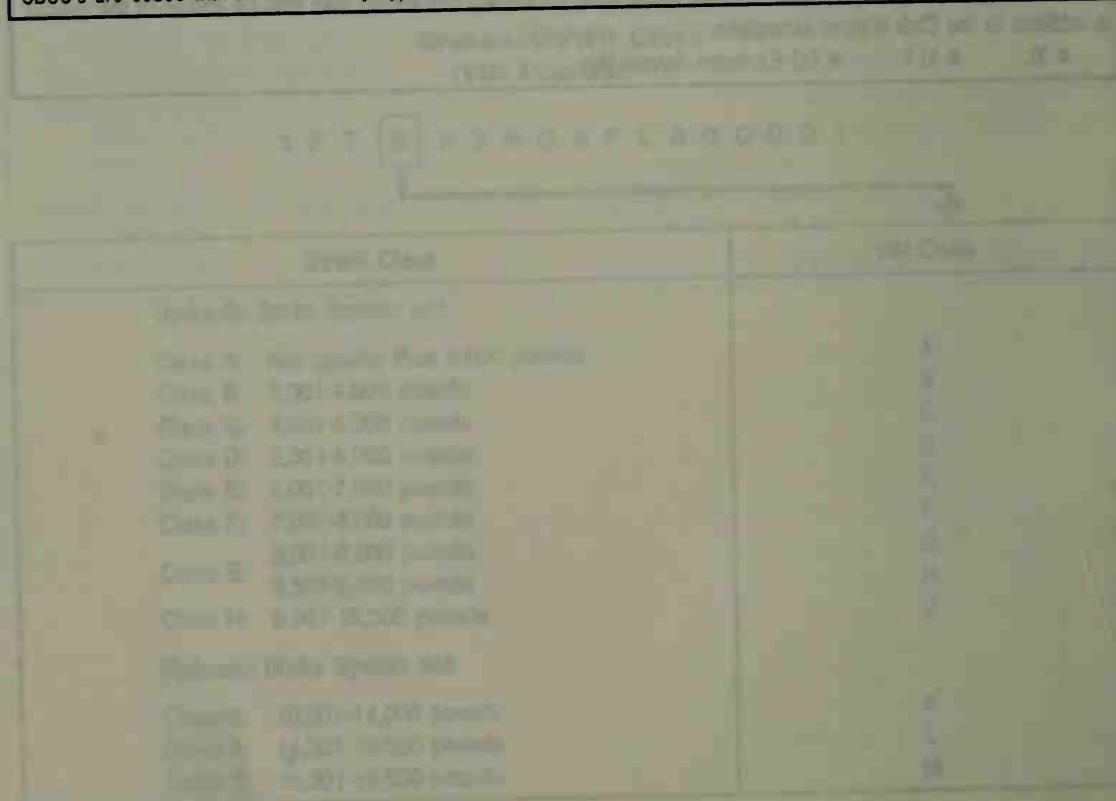
Model or Line, Series, Chassis, Cab Type — Cont'd (Vin Positions 5, 6 AND 7)

| VIN Code | | Line | Series | Chassis Type | Cab or Body Type | Vehicle Type (1) |
|------------|-------------|-----------|--------|--------------|-------------------------------------|------------------|
| Club Wagon | Super Wagon | | | | | |
| E14 | S14 | Econoline | E150 | 4x2 | Regular Van/Super Van, Cargo Van | Truck or IV |
| E15 | S15 | Econoline | E150 | 4x2 | Regular Van/Super Van, Window Van | Truck or IV |
| E16 | — | Econoline | E150 | 4x2 | Regular Van/Display Van | Truck or IV |
| E24 | S24 | Econoline | E250 | 4x2 | Regular Van/Super Van, Cargo Van | Truck or IV |
| E25 | S25 | Econoline | E250 | 4x2 | Regular Van/Super Van, Window Van | Truck or IV |
| E26 | — | Econoline | E250 | 4x2 | Regular Van/Display Van | Truck or IV |
| E34 | S34 | Econoline | E350 | 4x2 | Regular Van/Super Van, Cargo Van | Truck or IV |
| E35 | S35 | Econoline | E350 | 4x2 | Regular Van/Super Van, Window Van | Truck or IV |
| E36 | — | Econoline | E350 | 4x2 | Regular Van/Display Van | Truck or IV |
| Other | | | | | | |
| E37 | — | Econoline | E350 | 4x2 | Commercial Cutaway | IV |
| E39 | — | Econoline | E350 | 4x2 | Commercial Basic (Stripped) Chassis | IV |
| E30 | — | Econoline | E350 | 4x2 | RV Cutaway | IV |

(1) "MPV" means Multi-Purpose Vehicle. "IV" means Incomplete Vehicle "Truck" means Complete Vehicle.

Memo: For all Econoline except Stripped Chassis, the optional exterior nameplate "XL" (indicating different trim level) may also be affixed to the vehicle in addition to the Econoline nameplate.

Note: All Commercial Basic (Stripped) Chassis (CBSC) incomplete vehicles are designated by an "IFC" or "ZFC" World Manufacturer Identifier (WMI) Code — Special Order (DSO) model CBSC's and Regular Production Option (RPO) model CBSC's are coded with an "E39" Body Type code.



Vehicle Identification

Model or Line, Series, Chassis, Cab or Body Type

(VIN Positions 5, 6 and 7)

1FTB

F25

G5FLA00001

| VIN Code | Line | Series | Chassis Type | Cab or Body Type | Vehicle Type (1) |
|----------|-----------|--------|--------------|------------------|------------------|
| U15 | Bronco II | U150 | 4x4 | Bronco II | MPV |

Memo: One of the following optional exterior nameplates (indicating higher trim levels) may also be affixed to the vehicle in addition to the Bronco nameplate:

- XLT
- XLS

| Regular Cab | Super Cab or Crew Cab | | | | | |
|-------------|-----------------------|----------|------|-----|----------------------------------|-------------|
| F14 | X14 | F-Series | F150 | 4x4 | Regular Cab/Super Cab, Pickup | Truck or IV |
| F15 | X15 | F-Series | F150 | 4x2 | Regular Cab/Super Cab, Pickup | Truck or IV |
| F25 | X25 | F-Series | F250 | 4x2 | Regular Cab/Super Cab, Pickup | Truck or IV |
| F26 | X26 | F-Series | F250 | 4x4 | Regular Cab/Super Cab, Pickup | Truck or IV |
| F35 | W35 | F-Series | F350 | 4x2 | Regular Cab/Crew Cab, Pickup (b) | Truck or IV |
| F37 | — | F-Series | F350 | 4x2 | Regular Cab (Chassis Cab) | IV |
| F36 | W36 | F-Series | F350 | 4x4 | Regular Cab/Crew Cab, Pickup (b) | Truck or IV |
| F38 | — | F-Series | F350 | 4x4 | Regular Cab (Chassis Cab) | IV |

(1) "MPV" means Multi-Purpose Passenger Vehicle. "IV" means Incomplete Vehicle.

(b) F-350 Crew Cab Pickup is not available as in IV.

Memo: One of the following optional exterior nameplates (indicating trim levels) may also be affixed to the vehicle in addition to the F-Series nameplates:

- XL
- XLT Lariat
- Explorer (excluding Crew Cab)

Note: Stripped Chassis and other Special Order (DSO) units will be coded with the appropriate series VIN codes listed above.

Vehicle Identification

Engine Type, Displacement, Cylinders, Fuel Type, and Manufacturer (Vin Position 8)

1FTBF25 G 5FLA00001

| VIN Code | Displacement | | Cylinders | Fuel | Manufacturer |
|----------|--------------|-----|-----------|----------|-----------------|
| | Liter | CID | | | |
| K | 2.0 | 122 | I-4 | Gasoline | Ford |
| Z | 2.3 | 140 | I-4 | Gasoline | Ford |
| S | 2.8 | 173 | V-6 | Gasoline | Ford |
| 3 | 3.8 | 232 | V-6 | Gasoline | Ford |
| Y | 4.9 | 300 | I-6 | Gasoline | Ford |
| F | 5.0-2V | 302 | V-8 | Gasoline | Ford |
| N | 5.8-4V | 351 | V-8 | Gasoline | Ford |
| G | 5.8-2V | 351 | V-8 | Gasoline | Ford |
| H | 5.0-4V | 302 | V-8 | Gasoline | Ford |
| I | 6.9D | 420 | V-8 | Diesel | Intl. Harvester |
| L | 7.5 | 460 | V-8 | Gasoline | Ford |

Delete Engine

0 (Zero) DSO Glider-Delete Engine on motor vehicle equipment only.

Vehicle Identification

Check Digit for All Vehicles
(VIN Position 9)

1 F T B F 2 5 G 5 F L A 0 0 0 0 1

ZERO THROUGH NINE (0-9) OR X

CY2381-1B

Assembly Plant
(VIN Position 11)

1 F T B F 2 5 G 5 F L A 0 0 0 0 1

| VIN Code | Assembly Plant |
|----------|----------------|
| C | Ontario Truck |
| H | Lorain |
| K | Kansas City |
| L | Michigan Truck |
| N | Norfolk |
| P | Twin Cities |
| Z | St. Louis |

CY2383-1B

Vehicle Model Year for All Vehicles
(VIN Position 10)

1 F T B F 2 5 G 5 F L A 0 0 0 0 1

Production Sequence Number
(VIN Positions 12 Through 17)

1 F T B F 2 5 G 5 F L A 0 0 0 0 1

| VIN Code | Year |
|----------|------|
| C..... | 1982 |
| D..... | 1983 |
| E..... | 1984 |
| F..... | 1985 |
| G..... | 1986 |
| H..... | 1987 |
| J..... | 1988 |
| K..... | 1989 |
| L..... | 1990 |

SEQUENCE NUMBER

A 00001 — A 99,999
B 00001 — B 99,999
and so on.

Vehicle Identification

BUILD DATE STAMP LOCATIONS

The vehicle build date stamp is located as follows: On Bronco and Light Trucks (F-150 through F-350) the vehicle build date is stamped on the front surface of the radiator support on the passenger's side of the vehicle. On Econoline vehicles (E-150 through E-350), the build date is stamped on top of the radiator support. Following is a sample of the four digit number that indicates the month and day of build.

Actual Date of Build

Date Stamp on Vehicle

January 24 0124

October 21 1021

Yellow ink is used for the date stamp. When the marking surface is painted the body color, the date stamp will be marked in red ink. Units from the Ontario Truck Plant (Code C) will be marked with silver ink.

Exterior Paint Color Codes

MFD. BY FORD MOTOR CO. IN U.S.A.

DATE:

GVWR:

FRONT GAWR:

REAR GAWR:

AT PSI COLD

AT PSI COLD

THIS VEHICLE CONFORMS TO ALL APPLICABLE FEDERAL MOTOR VEHICLE SAFETY STANDARDS IN EFFECT ON THE DATE OF MANUFACTURE SHOWN ABOVE

Vehicle Identification No.

Type

2K 9A

DSO

EXTERIOR PAINT COLORS

| | | | | |
|-----|----------|------|-------|------|
| WB | Type GVW | Body | Trans | Axle |
| 133 | F252 | BA4 | F | 342 |

Note — Two Sets of Codes Indicates Two-Tone Paint

Ranger

| Code | Color | Code | Color |
|------|------------------------|------|--------------------|
| 1C | Black | 61 | Yellow |
| 1G | Silver Metallic | 8D | Bittersweet Glow |
| 1P | Medium Grey Metallic | 9A | White |
| 2K | Candyapple Red | 9P | Desert Tan |
| 3L | Midnight Blue Metallic | 9Q | Light Desert Tan |
| 3P | Medium Blue Metallic | 2G | Glamour Colors |
| 32 | Bright Blue | 8G | Bright Bittersweet |
| 4J | Dark Spruce Metallic | | Bittersweet Glow |

Vehicle Identification

Exterior Paint Color Codes

Bronco, E-150 — E-250 — E-350, F-150 — F-250 — F-350

MFD. BY FORD MOTOR CO. IN U.S.A.

DATE:
FRONT GAWR:

GVWR:
REAR GAWR:

WITH
TIRES
RIMS

WITH
TIRES
RIMS

AT PSI COLD

AT PSI COLD

THIS VEHICLE CONFORMS TO ALL APPLICABLE FEDERAL MOTOR VEHICLE SAFETY
STANDARDS IN EFFECT ON THE DATE OF MANUFACTURE SHOWN ABOVE

Vehicle Identification No.

Type

53 9Y

EXTERIOR PAINT COLORS

DSO

| | | | | | | | |
|-----|------|------|------|-------|------|------|--------|
| WB | Type | GWV | Body | Trans | Axle | Tape | Spring |
| 133 | | F252 | BA4 | F | 342 | B | 2D29 |

Note — Two Sets of Codes Indicate Two-Tone Paint

| Code | Color | Code | Color |
|------------------------------|-------------------------------|---------------------------------------|-------------------------|
| E-150 — E-250 — E-350 | | F-150 — F-250 — F-350 — Cont'd | |
| 1C | Black | 61 | Yellow |
| 2C | Midnight Canyon Red Metallic | 9C | Brite Copper Metallic |
| 3F | Light Blue | 9D | White |
| 3L | Midnight Blue Metallic | 9H | Light Desert Tan |
| 5U | Walnut Metallic | 9V | Light Charcoal Metallic |
| 51 | Medium Dark Fire Red | 9Y | Medium Walnut Metallic |
| 53 | Medium Desert Tan | Bronco II | |
| 8N | Dark Cordovan Metallic | 1C | Black |
| 8Q | Light Desert Tan | 3L | Midnight Blue Metallic |
| 9C | Brite Copper Metallic | 3P | Brite Blue Metallic |
| 9D | White | 51 | Medium Dark Fire Red |
| 9H | Medium Copper Metallic | 53 | Medium Desert Tan |
| 9V | Light Charcoal Metallic | 61 | Medium Yellow |
| 9Y | Medium Walnut Metallic | 9C | Brite Copper Metallic |
| F-150 — F-250 — F-350 | | 9D | White |
| 1C | Black | 9V | Light Charcoal Metallic |
| 2E | Light Canyon Red | 9Y | Walnut Metallic |
| 3F | Light Blue | Bronco II Roof Colors | |
| 3L | Medium Midnight Blue Metallic | A | Black |
| 3P | Brite Blue Metallic | H | Medium Desert Tan |
| 51 | Medium Dark Fire Red | W | White |
| 53 | Medium Desert Tan | | |

Vehicle Identification

Type — Gross Vehicle Weight (GVW) Codes

Bronco, E-150 — E-350, F-150 — F-350

MFD. BY FORD MOTOR CO. IN U.S.A.

DATE:
FRONT GAWR:

GVWR:
REAR GAWR:

WITH
TIRES
RIMS

WITH
TIRES
RIMS

AT PSI COLD

AT PSI COLD

THIS VEHICLE CONFORMS TO ALL APPLICABLE FEDERAL MOTOR VEHICLE
SAFETY STANDARDS IN EFFECT ON THE DATE OF MANUFACTURE SHOWN ABOVE

Vehicle Identification No.

Type

4J 9W

EXTERIOR PAINT COLORS

| WB | Type GVW | Body | Trans | Axle | Tape | DSO | Spring |
|-----|----------|------|-------|------|------|-----|--------|
| 133 | R11L | CH2 | T | 822 | B | | C22D |

R11

L

| Series | Series Code | GVWR Code | GVWR (lb.) |
|------------|--|---|--|
| Ranger | | | |
| Ranger 4x2 | R-10 R-10 R-10 R-10 R-10 R-10 R-10 R-10 R-10 R-10 R-12 R-12 R-12 | 0 1 2 3 4 5 V W X Y B C D | 3800 3820 4290 4280 4400 4400 4020 4080 4460 4500 4260 4440 4400 |
| Ranger 4x4 | R-11 R-11 R-11 R-11 R-11 R-11 R-11 R-11 | J K L M N R P S | 4040 4060 4440 4500 4240 4300 4460 4500 |
| Bronco II | | | |
| | U14 U14 U14 U14 | 0 1 3 4 | 5350 5450 6050 6300 |

Vehicle Identification

GROSS VEHICLE WEIGHT (GVW) CODES — CONT'D

| Series | Series Code | GVWR Code | GVWR (lb.) | Wheelbase (in.) |
|------------------------------|-------------|-----------|--------------|-----------------|
| F-150 — F-250 — F-350 | | | | |
| F-150 (4x2) | F15, F17 | 1 2 | 4800 4900 | 117 133 |
| | F15, F17 | 3 | 5250 | 117 |
| | F15, F17 | 4 | 5450 | 133 |
| | F15, F17 | 5 | 6100 | 133 |
| | X15 | 1 | 6050 | 139 |
| | X15 | 2 | 6250 | 155 |
| F-150 (4x4) | F14, F18 | 1 | 6100 | 117 |
| | F14, F18 | 2 | 6250 | 133 |
| | X14 | 1 | 6450 | 155 |
| F-250 (4x2) Light Duty | F25 | 1 | 6300 | 133 |
| | F27 | 1 | 6500 | 133 |
| | F25, F27 | 2 | 7300 | 133 |
| | F25 | 3 | 7800 | 133 |
| F-250 (4x2) Heavy-Duty | F25, F27 | 7 | 8600 | 133 |
| | F27 | 8 | 8600 | 137 |
| | F27 | 9 | 9000 | 161 |
| | X25 | 9 | 8800 | 155 |
| F-250 (4x4) | F26 | 1 | 6600 | 133 |
| | F26, F28 | 8 | 8600 | 133 |
| | X26 | 1 | 7600 | 155 |
| F-350 (4x2) | F35 | 1 | 8700 | 133 |
| | F35 | 2 | 10,000 | 133 |
| | F37 | 6 | 8900 | 137 |
| | F37 | 8 | 10,000 | 137, 161 |
| | F37 | 9 | 11,000 | 137, 161 |
| | F37 | 5 | 11,500 | 137, 161 |
| | W35 | 1 | 8700 | 168 |
| | W35 | 2 | 9200 | 168 |
| F-350 (4x4) | F36 | 1 | 9000 | 133 |
| | F38 | 1 | 9000 | 133 |
| | W36 | 1 | 9300 | 168 |
| | | | 11,500 | |
| E-150 — E-350 | | | | |
| E-150 Wagon | E11 | 0 | 6000 | 124 |
| | E11 | 1 | 6200 | 124 |
| | E11 | 2 | 6000 | 138 |
| | E11 | 3 | 6200 | 138 |
| | E11 | 4 | 6600 | 138 |
| | E11 | 5 | 6050 | 124 |
| | E11 | 6 | 6200 | 124 |
| | E11 | 9 | 6600 | 124 |
| | E11 | B | 6100 | 138 |
| | E11 | C | 6300 | 138 |
| | E11 | D | 6600 | 138 |

Vehicle Identification

GROSS VEHICLE WEIGHT (GVW) CODES — CONT'D

| Series | Series Code | GVWR Code | GVWR (lb.) | Wheelbase (in.) |
|--|-------------|-----------|------------|-----------------|
| Bronco II, E-150 — E-350, F-150 — F-350 | | | | |
| E-250 Wagon | E21 | P | 8550 | 138 |
| | E21 | S | 8800 | 138 |
| E-250 Super Wagon | S21 | 1 | 8900 | 138 |
| | S21 | 2 | 9300 | 138 |
| | S21 | 6 | 8700 | 138 |
| | S21 | 7 | 9000 | 138 |
| | S21 | B | 8700 | 138 |
| | S21 | C | 9000 | 138 |
| | S21 | G | 9000 | 138 |
| | S21 | H | 9300 | 138 |
| E-350 Super Wagon | S31 | 0 | 8900 | 138 |
| | S31 | 1 | 9300 | 138 |
| | S31 | 2 | 8700 | 138 |
| | S31 | 3 | 9000 | 138 |
| | S31 | 4 | 8700 | 138 |
| | S31 | 5 | 9100 | 138 |
| | S31 | 6 | 9000 | 138 |
| | S31 | 7 | 9200 | 138 |
| | S31 | B | 9000 | 138 |
| | S31 | C | 9400 | 138 |
| E-150 Van | E14-E15-E16 | 1 | 5250 | 124 |
| | E14-E15-E16 | 2 | 5950 | 124 |
| | E14-E15-E16 | 3 | 6350 | 124 |
| | E14-E15-E16 | 1 | 5250 | 138 |
| | E14-E15-E16 | 2 | 5900 | 138 |
| | E14-E15-E16 | 3 | 6300 | 138 |
| E-150 Super Van | S14-S15-S16 | 1 | 6050 | 138 |
| E-250 Van | E24-E25-E26 | 1 | 6750 | 138 |
| | E24-E25-E26 | 2 | 7500 | 138 |
| E-250 Super Van | S24-S25-S26 | 1 | 7900 | 138 |
| E-350 Van | E34-E35-E36 | 1 | 8750 | 138 |
| | E34-E35-E36 | 2 | 9500 | 138 |
| E-350 Super Van | S34-S35-S36 | 1 | 9100 | 138 |

Vehicle Identification

GROSS VEHICLE WEIGHT (GVW) CODES — CONT'D

E-350 RV Cutaway (Less PDV)

| Series Code | GVWR Code | GVWR (lb.) | Wheelbase (in.) |
|----------------|--------------|------------------|-----------------|
| E30 | 1 | 9750 Single Rear | 138 |
| E30 | 2 | 10250 Dual Rear | 138 |
| E30 | 2 | 10250 Dual Rear | 158 |
| E30 | 3 | 11000 Dual Rear | 158 |
| E30 | 3 | 11000 Dual Rear | 176 |

E-350 Commercial Cutaway (Less PDV)

| | | | |
|-----|---|------------------|-----|
| E37 | 1 | 8950 Single Rear | 138 |
| E37 | 2 | 9800 Dual Rear | 138 |
| E37 | 3 | 10000 Dual Rear | 138 |
| E37 | 4 | 9700 Dual Rear | 158 |

E-350 Parcel Delivery Cutaways

| | | | |
|-----|---|------------------|-----|
| E38 | 1 | 8750 Single Rear | 138 |
| E38 | 2 | 9700 Dual Rear | 138 |
| E38 | 3 | 10000 Dual Rear | 158 |

Vehicle Identification

BODY CODES — RANGER

MFD. BY FORD MOTOR CO. IN U.S.A.

DATE:

GVWR:

FRONT GAWR:

REAR GAWR:

WITH
TIRES
RIMS

WITH
TIRES
RIMS

AT PSI COLD

AT PSI COLD

THIS VEHICLE CONFORMS TO ALL APPLICABLE FEDERAL MOTOR VEHICLE SAFETY STANDARDS IN EFFECT ON THE DATE OF MANUFACTURE SHOWN ABOVE

Vehicle Identification No.

Type

4J 9W

DSO

EXTERIOR PAINT COLORS

| WB | Type GVW | Body | Trans | Axle | Tape | Spring |
|-----|----------|------|-------|------|------|--------|
| 108 | R11L | CH2 | T | 722 | B | C22D |

C H 2

Trim Color

| Code | Color |
|------|--------------|
| B | Regatta Blue |
| D | Canyon Red |
| H | Desert Tan |

Seat Type

| Code | Seat Type |
|----------|------------------------|
| Base | |
| E | Vinyl Bench |
| G | Cloth and Vinyl Bench |
| XL, XLT | |
| C | Knit and Vinyl |
| D | B/Cloth and Vinyl |
| J | Cloth and Vinyl Bucket |
| XLS | |
| J | Cloth and Vinyl Bucket |
| Explorer | |
| E | Vinyl Bench |
| G | Cloth and Vinyl Bench |

Cab Body Type Code

| Code | Description |
|------|----------------------------------|
| 2 | Base (Standard Cab) |
| D | XL Interior with Base Exterior |
| M | XL Exterior with Base Interior |
| 4 | XL (XL Interior and XL Exterior) |
| 5 | XLT |
| 6 | XLS |

Vehicle Identification

BODY CODES — BRONCO II, LIGHT TRUCK (F-150 THRU F-350)

MFD. BY FORD MOTOR CO. IN U.S.A.

DATE: 84
FRONT GAWR:

GVWR:
REAR GAWR:

WITH
TIRES
RIMS

WITH
TIRES
RIMS

AT PSI COLD

AT PSI COLD

THIS VEHICLE CONFORMS TO ALL APPLICABLE FEDERAL MOTOR VEHICLE SAFETY STANDARDS IN EFFECT ON THE DATE OF MANUFACTURE SHOWN ABOVE

Vehicle Identification No.

Type

7H 2W

EXTERIOR PAINT COLORS

DSO

| WB | Type GVW | Body | Trans | Axle | Tape | Spring |
|-----|----------|------|-------|------|------|--------|
| 133 | F252 | LA4 | F | 342 | B | 2D29 |

L A 4

Seat Trim and Style

| Bronco II | |
|-----------|--------------------------|
| Code | Trim Type |
| A | Vinyl Bucket |
| M | B/Cloth and Vinyl Bucket |
| L | B/Cloth and Vinyl Bench |
| K | B/Cloth Captain Chair |

| Light Truck Custom Bench | |
|--------------------------|-------------------------|
| Code | Trim Type |
| B | Vinyl Bench |
| D | Knit Vinyl Bench |
| L | B/Cloth and Vinyl Bench |
| N | Cloth Captains Chairs |
| K | B/Cloth Bench |

Cab Body Styles

F-150 Thru 350 and Bronco II

| Crew Cab Code | Super Cab Code | Regular Code | Style |
|---------------|----------------|--------------|-------------------|
| — | — | 3 | Flareside Pick-up |
| D | M | 4 | Styleside Pick-up |
| — | — | 8 | Chassis Cab |
| — | — | 2 | Bronco Base |
| — | — | 5 | Bronco XLT |

Interior
Trim Color — Bronco

| Code | Color |
|------|-------|
| B | Blue |
| D | Red |
| H | Tan |

Interior
Trim Color — Light Truck

| Code | Color |
|------|----------|
| A | Charcoal |
| B | Blue |
| D | Red |
| H | Tan |

Vehicle Identification

BODY CODES — ECONOLINE (E-150 THRU E-350)

MFD. BY FORD MOTOR CO. IN U.S.A.

DATE:

GVWR: LB KG

FRONT GAWR: KG

LB

WITH
TIRES
RIMS

REAR
GAWR: KG

WITH
TIRES
RIMS

AT PSI COLD

AT PSI COLD

THIS VEHICLE CONFORMS TO ALL APPLICABLE FEDERAL MOTOR VEHICLE SAFETY STANDARDS IN EFFECT ON THE DATE OF MANUFACTURE SHOWN ABOVE

Vehicle Identification No.

Type Truck

9C 9N

EXTERIOR PAINT COLORS

DSO

| WB | Type GVW | Body | Trans | Axle | Spring |
|-----|----------|------|-------|------|--------|
| 138 | E112 | EY | T | 16 | 2C2D |

E Y

Seat Trim and Style

| Code | Trim | Type |
|------|-------------------|---------------|
| A | Vinyl | Bucket |
| B | Vinyl | Captain Chair |
| E | Vinyl | Bucket |
| F | B/Cloth and Vinyl | Bucket |
| H | Cloth and Vinyl | Captain Chair |

Trim Color

| Code | Color |
|------|--------------|
| A | Charcoal |
| B | Regatta Blue |
| D | Canyon Red |
| H | Desert Tan |
| Y | Sand Beige |

Vehicle Identification

TRANSMISSION CODES

MFD. BY FORD MOTOR CO. IN U.S.A.

DATE:

FRONT GAWR:

GVWR:

REAR GAWR:

WITH
TIRES
RIMS

WITH
TIRES
RIMS

AT PSI COLD

AT PSI COLD

THIS VEHICLE CONFORMS TO ALL APPLICABLE FEDERAL MOTOR VEHICLE SAFETY STANDARDS IN EFFECT ON THE DATE OF MANUFACTURE SHOWN ABOVE

Vehicle Identification No.

Type

7H 9W

EXTERIOR PAINT COLORS

DSO

| WB | Type GVW | Body | Trans | Axle | Tape | Spring |
|-----|----------|------|-------|------|------|--------|
| 133 | F252 | LA4 | F | 342 | B | 2D29 |



| Code | Description |
|-------------------------|----------------------------------|
| Ranger | |
| V | Automatic — C3 |
| W | Automatic — C5 |
| X | Manual — 4-Speed |
| 5 | Manual 5-Speed Overdrive |
| Bronco II | |
| A | Manual — 4-Speed New Process |
| B | Manual — 4-Speed Overdrive |
| F | Manual — 4-Speed Warner |
| K | Automatic C6 |
| F-150 Thru F-350 | |
| A | Manual — 4-Speed New Process 435 |
| B | Manual — 4-Speed Overdrive |
| F | Manual — 4-Speed Warner-T18 |
| P | Manual — 4-Speed Warner-T19 |
| C | Manual — 3-Speed Ford |
| K | Automatic — C6 |
| T | Automatic — AOD |
| E-150 — E-350 | |
| A | Manual — 4-Speed New Process |
| F | Manual — 4-Speed Warner |
| C | Manual — 3-Speed |
| B | Manual — 4-Speed Overdrive |
| G | Automatic Cruise-O-Matic C6 |
| T | Automatic 4-Speed AOD |

Vehicle Identification

AXLE CODES

MFD. BY FORD MOTOR CO. IN U.S.A.

DATE:
FRONT GAWR:

GVWR:
REAR GAWR:

WITH
TIRES
RIMS

WITH
TIRES
RIMS

AT PSI COLD

AT PSI COLD

THIS VEHICLE CONFORMS TO ALL APPLICABLE FEDERAL MOTOR VEHICLE SAFETY STANDARDS IN EFFECT ON THE DATE OF MANUFACTURE SHOWN ABOVE

Vehicle Identification No.

Type

7H 9W

EXTERIOR PAINT COLORS

DSO

| WB | Type | GVW | Body | Trans | Axle | |
|-----|------|------|------|-------|------|--|
| 133 | | F252 | BA4 | F | 342 | |

34

2

Rear Axle Codes

| Code | Description | #Capacity | Ratio |
|----------------------|-------------------|-----------|-------|
| Ranger | | | |
| 72 | Regular | 2200 | 3.08 |
| 74 | Regular | 2200 | 3.45 |
| 84 | Regular | 2700 | 3.45 |
| 86 | Regular | 2700 | 3.73 |
| F4 | Limited Slip | 2700 | 3.45 |
| F6 | Limited Slip | 2700 | 3.73 |
| Bronco II | | | |
| 13 | Regular | 3750 | 4.11 |
| 16 | Regular | 3750 | 3.50 |
| 19 | Regular | 3750 | 3.55 |
| H3 | Limited Slip | 3750 | 4.11 |
| H6 | Limited Slip | 3750 | 3.50 |
| H9 | Limited Slip | 3750 | 3.55 |
| F-150 — F-350 | | | |
| 13 | Ford | 3750 | 4.11 |
| 14 | Ford | 3750 | 3.00 |
| 16 | Ford | 3750 | 3.50 |
| 17 | Ford | 3750 | 2.47 |
| 18 | Ford | 3750 | 3.08 |
| 19 | Ford | 3750 | 3.55 |
| H3 | Ford Limited Slip | 3750 | 4.11 |
| H4 | Ford Limited Slip | 3750 | 3.00 |

| Code | Description | #Capacity | Ratio |
|----------------------------------|-------------------|-----------|-------|
| F-150 — F-350 (Continued) | | | |
| H6 | Ford Limited Slip | 3750 | 3.50 |
| H8 | Ford Limited Slip | 3750 | 3.08 |
| H9 | Ford Limited Slip | 3750 | 3.55 |
| 22 | Dana | 5300 | 4.10 |
| 23 | Dana | 5300 | 3.54 |
| 24 | Dana | 5300 | 3.73 |
| 26 | Ford | 4050 | 3.55 |
| 31 | Dana | 6250 | 3.07 |

Vehicle Identification

REAR AXLE CODES — CONT'D

| Code | Description | # Capacity | Ratio |
|---------------------------|-------------------|------------|-------|
| F-150 — F-350 (Continued) | | | |
| 32 | Dana | 6250 | 4.10 |
| 33 | Dana | 6250 | 3.54 |
| 34 | Dana | 6250 | 3.73 |
| 42 | Dana | 7400 | 4.10 |
| 43 | Dana | 7400 | 3.54 |
| 52 | Dana | 7400 | 4.10 |
| 53 | Dana | 7400 | 3.54 |
| 62 | Dana | 8200 | 4.10 |
| 63 | Dana | 8400 | 3.54 |
| 72 | Dana | 6300 | 4.10 |
| 73 | Dana | 6300 | 3.54 |
| B2 | Dana Limited Slip | 5300 | 4.10 |
| B3 | Dana Limited Slip | 5300 | 3.54 |
| B4 | Dana Limited Slip | 5300 | 3.73 |
| B6 | Ford Limited Slip | 4050 | 3.55 |
| C2 | Dana Limited Slip | 6250 | 4.10 |
| C3 | Dana Limited Slip | 6250 | 3.54 |
| D2 | Dana Limited Slip | 7400 | 4.10 |
| D3 | Dana Limited Slip | 7400 | 3.54 |
| E2 | Dana Limited Slip | 7400 | 4.10 |
| F3 | Dana Limited Slip | 8200 | 3.54 |
| G2 | Dana Limited Slip | 6300 | 4.10 |
| G3 | Dana Limited Slip | 6300 | 3.54 |

Vehicle Identification

AXLE CODES
E-150 — E-250 — E-350
MFD. BY FORD MOTOR CO. IN U.S.A.

| DATE: FRONT GAWR: KG | LB | WITH TIRES RIMS | GVWR: REAR GAWR: KG | LB/ KG | LB | KG WITH TIRES RIMS |
|----------------------------|----|-----------------------|---------------------------|-----------|----|-----------------------------|
| AT PSI COLD | | | AT PSI COLD | | | |

THIS VEHICLE CONFORMS TO ALL APPLICABLE FEDERAL MOTOR VEHICLE SAFETY STANDARDS IN EFFECT ON THE DATE OF MANUFACTURE SHOWN ABOVE
Vehicle Identification No.
Type

9C 9N

EXTERIOR PAINT COLORS
DSO

| WB | Type GVW | Body | Trans | Axle | Spring |
|-----|----------|------|-------|------|--------|
| 138 | E112 | EY | T | 16 | 2C 2D |


E150 — E-250 — E-350 Regular Rear Axle

| Code | Description | #Capacity | Ratio |
|------|-------------|-----------|-------|
| 14 | Ford | 3750 | 3.00 |
| 16 | Ford | 3750 | 3.50 |
| 18 | Ford | 3750 | 3.08 |
| 23 | Dana | 5300 | 3.54 |
| 24 | Dana | 5300 | 3.73 |
| 26 | Ford | 4050 | 3.55 |
| 31 | Dana | 6340 | 3.07 |
| 32 | Dana | 6340 | 4.10 |
| 33 | Dana | 6340 | 3.54 |
| 52 | Dana | 7400 | 4.10 |
| 53 | Dana | 7400 | 3.54 |

Vehicle Identification

AXLE CODES — CONT'D

E-150 — E-250 — E-350 Limited Slip Rear Axle

| Code | Description | #Capacity | Ratio |
|------|-------------|-----------|-------|
| H4 | Ford | 3750 | 3.00 |
| H6 | Ford | 3750 | 3.50 |
| H8 | Ford | 3750 | 3.08 |
| B3 | Dana | 5300 | 3.54 |
| B4 | Dana | 5300 | 3.73 |
| C2 | Dana | 6340 | 4.10 |
| C3 | Dana | 6340 | 3.54 |
| E2 | Dana | 7400 | 4.10 |
| E4 | Dana | 7400 | 3.73 |

2

Front Axle Codes (Not Applicable on E-150 Thru E-350)

| Bronco II, F-150 Thru F-350, Ranger | <u>Code</u> | <u>Description</u> |
|--|-------------|-------------------------|
| | 2 | Front Axle Limited Slip |

2

Front Axle Limited Slip

| Item # | Code |
|--------|------|
| 10000 | 50 |
| 10001 | 20 |
| 10002 | 21 |
| 10003 | 22 |
| 10004 | 23 |
| 10005 | 24 |
| 10006 | 25 |
| 10007 | 26 |
| 10008 | 27 |
| 10009 | 28 |
| 10010 | 29 |
| 10011 | 30 |
| 10012 | 31 |
| 10013 | 32 |
| 10014 | 33 |
| 10015 | 34 |
| 10016 | 35 |
| 10017 | 36 |
| 10018 | 37 |
| 10019 | 38 |
| 10020 | 39 |
| 10021 | 40 |
| 10022 | 41 |
| 10023 | 42 |
| 10024 | 43 |
| 10025 | 44 |
| 10026 | 45 |
| 10027 | 46 |
| 10028 | 47 |
| 10029 | 48 |
| 10030 | 49 |
| 10031 | 50 |
| 10032 | 51 |
| 10033 | 52 |
| 10034 | 53 |
| 10035 | 54 |
| 10036 | 55 |
| 10037 | 56 |
| 10038 | 57 |
| 10039 | 58 |
| 10040 | 59 |
| 10041 | 60 |
| 10042 | 61 |
| 10043 | 62 |
| 10044 | 63 |
| 10045 | 64 |
| 10046 | 65 |
| 10047 | 66 |
| 10048 | 67 |
| 10049 | 68 |
| 10050 | 69 |
| 10051 | 70 |
| 10052 | 71 |
| 10053 | 72 |
| 10054 | 73 |
| 10055 | 74 |
| 10056 | 75 |
| 10057 | 76 |
| 10058 | 77 |
| 10059 | 78 |
| 10060 | 79 |
| 10061 | 80 |
| 10062 | 81 |
| 10063 | 82 |
| 10064 | 83 |
| 10065 | 84 |
| 10066 | 85 |
| 10067 | 86 |
| 10068 | 87 |
| 10069 | 88 |
| 10070 | 89 |
| 10071 | 90 |
| 10072 | 91 |
| 10073 | 92 |
| 10074 | 93 |
| 10075 | 94 |
| 10076 | 95 |
| 10077 | 96 |
| 10078 | 97 |
| 10079 | 98 |
| 10080 | 99 |
| 10081 | 00 |

| Item # | Code |
|--------|------|
| 10000 | 01 |
| 10001 | 02 |
| 10002 | 03 |
| 10003 | 04 |
| 10004 | 05 |
| 10005 | 06 |
| 10006 | 07 |
| 10007 | 08 |
| 10008 | 09 |
| 10009 | 10 |
| 10010 | 11 |
| 10011 | 12 |
| 10012 | 13 |
| 10013 | 14 |
| 10014 | 15 |
| 10015 | 16 |
| 10016 | 17 |
| 10017 | 18 |
| 10018 | 19 |
| 10019 | 20 |
| 10020 | 21 |
| 10021 | 22 |
| 10022 | 23 |
| 10023 | 24 |
| 10024 | 25 |
| 10025 | 26 |
| 10026 | 27 |
| 10027 | 28 |
| 10028 | 29 |
| 10029 | 30 |
| 10030 | 31 |
| 10031 | 32 |
| 10032 | 33 |
| 10033 | 34 |
| 10034 | 35 |
| 10035 | 36 |
| 10036 | 37 |
| 10037 | 38 |
| 10038 | 39 |
| 10039 | 40 |
| 10040 | 41 |
| 10041 | 42 |
| 10042 | 43 |
| 10043 | 44 |
| 10044 | 45 |
| 10045 | 46 |
| 10046 | 47 |
| 10047 | 48 |
| 10048 | 49 |
| 10049 | 50 |
| 10050 | 51 |
| 10051 | 52 |
| 10052 | 53 |
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| 10054 | 55 |
| 10055 | 56 |
| 10056 | 57 |
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| 10058 | 59 |
| 10059 | 60 |
| 10060 | 61 |
| 10061 | 62 |
| 10062 | 63 |
| 10063 | 64 |
| 10064 | 65 |
| 10065 | 66 |
| 10066 | 67 |
| 10067 | 68 |
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| 10081 | 82 |
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| 10085 | 86 |
| 10086 | 87 |
| 10087 | 88 |
| 10088 | 89 |
| 10089 | 90 |
| 10090 | 91 |
| 10091 | 92 |
| 10092 | 93 |
| 10093 | 94 |
| 10094 | 95 |
| 10095 | 96 |
| 10096 | 97 |
| 10097 | 98 |
| 10098 | 99 |
| 10099 | 00 |

| Item # | Code |
|--------|------|
| 10000 | 00 |
| 10001 | 01 |
| 10002 | 02 |
| 10003 | 03 |
| 10004 | 04 |
| 10005 | 05 |
| 10006 | 06 |
| 10007 | 07 |
| 10008 | 08 |
| 10009 | 09 |
| 10010 | 10 |
| 10011 | 11 |
| 10012 | 12 |
| 10013 | 13 |
| 10014 | 14 |
| 10015 | 15 |
| 10016 | 16 |
| 10017 | 17 |
| 10018 | 18 |
| 10019 | 19 |
| 10020 | 20 |
| 10021 | 21 |
| 10022 | 22 |
| 10023 | 23 |
| 10024 | 24 |
| 10025 | 25 |
| 10026 | 26 |
| 10027 | 27 |
| 10028 | 28 |
| 10029 | 29 |
| 10030 | 30 |
| 10031 | 31 |
| 10032 | 32 |
| 10033 | 33 |
| 10034 | 34 |
| 10035 | 35 |
| 10036 | 36 |
| 10037 | 37 |
| 10038 | 38 |
| 10039 | 39 |
| 10040 | 40 |
| 10041 | 41 |
| 10042 | 42 |
| 10043 | 43 |
| 10044 | 44 |
| 10045 | 45 |
| 10046 | 46 |
| 10047 | 47 |
| 10048 | 48 |
| 10049 | 49 |
| 10050 | 50 |
| 10051 | 51 |
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| 10057 | 57 |
| 10058 | 58 |
| 10059 | 59 |
| 10060 | 60 |
| 10061 | 61 |
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| 10066 | 66 |
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| 10083 | 83 |
| 10084 | 84 |
| 10085 | 85 |
| 10086 | 86 |
| 10087 | 87 |
| 10088 | 88 |
| 10089 | 89 |
| 10090 | 90 |
| 10091 | 91 |
| 10092 | 92 |
| 10093 | 93 |
| 10094 | 94 |
| 10095 | 95 |
| 10096 | 96 |
| 10097 | 97 |
| 10098 | 98 |
| 10099 | 99 |
| 10000 | 00 |

Vehicle Identification

DISTRICT SALES OFFICE (DSO) AND WHEELBASE (WB) CODES

MFD. BY FORD MOTOR CO. IN U.S.A.

DATE:
FRONT GAWR:

GVWR:
REAR GAWR:

WITH
TIRES
RIMS

WITH
TIRES
RIMS

AT PSI COLD

AT PSI COLD

THIS VEHICLE CONFORMS TO ALL APPLICABLE FEDERAL MOTOR VEHICLE SAFETY STANDARDS IN EFFECT ON THE DATE OF MANUFACTURE SHOWN ABOVE

Vehicle Identification No.

Type

4J 9W

EXTERIOR PAINT COLORS

23

DSO

| WB | Type | GVW | Body | Trans | Axle | Tape | Spring |
|-----|------|------|------|-------|------|------|--------|
| 133 | | F252 | CH2 | T | 822 | B | C22D |

DSO — FSO — PTO (DOMESTIC, FOREIGN AND SPECIAL ORDER)

The D.S.O. space will show a two-digit code number of the district which ordered the unit (see chart below). This code will appear on all units — domestic or export. If unit is built on a D.S.O., E.S.O., P.T.O. (special orders), the complete order number is under the D.S.O. space after the district code number.

| Wheelbase (Inches) |
|--|
| 94 (Bronco II) |
| 108 (Ranger) |
| 114 (Ranger) |
| Bronco II |
| 105 |
| F-150 thru F-350 |
| 117 |
| 133 155 |
| 137 161 |
| 139 168 |
| E-150 thru E-350 (Econoline and Club Wagon) |
| 124 |
| 138 |
| 158 |
| 176 |

| Code | District |
|------|--------------|
| 11 | Boston |
| 12 | Buffalo |
| 14 | Pittsburgh |
| 15 | New York |
| 16 | Philadelphia |
| 17 | Washington |
| 21 | Atlanta |
| 22 | Charlotte |
| 23 | Memphis |
| 24 | Jacksonville |
| 25 | Richmond |
| 26 | New Orleans |
| 28 | Louisville |
| 41 | Chicago |
| 42 | Cleveland |
| 43 | Milwaukee |
| 46 | Indianapolis |
| 47 | Cincinnati |
| 48 | Detroit |

| Code | District |
|------|-------------------------|
| 52 | Dallas |
| 53 | Kansas City |
| 54 | Omaha |
| 55 | St. Louis |
| 57 | Houston |
| 58 | Twin Cities |
| 71 | Los Angeles |
| 72 | San Jose |
| 73 | Salt Lake City |
| 74 | Seattle |
| 75 | Phoenix |
| 76 | Denver |
| 83 | Government |
| 84 | Home Office Reserve |
| 85 | American Red Cross |
| 86 | Recreation Vehicles |
| 87 | Body Company |
| 89 | Transportation Services |
| 90's | Export |
| 00 | Special |

Vehicle Identification

DISTRICT SALES OFFICE (DSO) AND WHEELBASE (WB) CODES — CONT'D

Ford of Canada

| Mercury Regions | Ford Regions | Mercury Regions | Ford Regions |
|-----------------|---------------|-----------------|----------------|
| A1 Central | B1 Central | A6 Western | B6 Western |
| A2 Eastern | B2 Eastern | A7 Pacific | B7 Pacific |
| A3 Atlantic | B3 Atlantic | A8 Great Lakes | B8 Great Lakes |
| A4 Midwestern | B4 Midwestern | 11 Export | 11 Export |

Chassis — Wheels and Tires

P/LT- METRIC TIRE DETAILS

Tire Cross-Section Width — given in millimeters (215/235 mm in the example at right). Increases or decreases in 10-millimeter increments to designate tire size and always ends with the numeral 5 (for example, 215, 225 or 235).

Tire Aspect Ratio — the ratio (in percent figures) of tire cross-section height to width (75/85 in examples at right). Corresponds to the previous 60-Series, 78-Series and 80-Series tires used on passenger cars.

Tire Construction — "R" (as in examples at right) indicates radial ply tire construction.

Rim Diameter — is always expressed in inches (15/16 in the examples at right), which has long been a customary tire measurement dimension.

Load Range — is expressed as "SL"/"E" (as in the examples at right) for Standard Load Range, or "XL" for Extra Load Range. Load capacity is *not* otherwise identified in the tire size designation. The load range is related to maximum tire inflation pressure. Maximum tire pressure is stamped on the tire sidewall in metric Kilo Pascals (KPA) and pounds per square inch (psi). (6.895 Kilo Pascals is about equal to one pound per square inch.) The maximum load capacity of the tire will also be stamped on the sidewall in kilograms and pounds. See the table at right for the maximum load capacity of P-Metric tires used on light trucks. Internal construction of an XL-rated tire is different than that of an SL-rated tire to carry the higher load.

*Except Canada

| | | | | | |
|---|------|----|---|----|----|
| P | 215/ | 75 | R | 15 | SL |
| LT | 235/ | 85 | R | 16 | E |
| | | | | | |
| Load Range: B, C, D or E ply rating with LT-Metric Tires: SL (Standard Load) or XL (Extra Load) with P-Metric tires | | | | | |
| Rim diameter in inches. R = Radial ply construction B = Bias-belted construction D = Diagonal (bias non-belted) construction | | | | | |
| Tire Aspect Ratio — tire section height is 85% (LT example) or 75% (P example) as great as the width. | | | | | |
| Tire cross-section width in millimeters (mm). | | | | | |
| Type of Tire: LT = Light Truck; P = Passenger-type | | | | | |

Chassis — Wheels and Tires

The following tire comparison table is presented for your convenience.

P-METRIC/ALPHA-NUMERIC TIRE COMPARISON

| P-Metric Size | Max. Load Capacity (1 tire) | Previous Alpha-Numeric Size | Max. Load Capacity (1 tire) |
|----------------------------------|-----------------------------|-----------------------------|-----------------------------|
| P195/75R 15 SL | 1338 lbs. | F78-15B | 1363 lbs. |
| P205/75R 15 SL | 1452 lbs. | GR60-15B & GR78-15B | 1472 lbs. |
| P215/75R 15 SL | 1583 lbs. | H78-15B | 1609 lbs. |
| P225/75R 15 SL | 1703 lbs. | JR78-15B | 1690 lbs. |
| P235/75R 15 SL P225/75R 15 XL | 1843 lbs. | L78-15B | 1790 lbs. |
| P235/75R 15 XL | 1984 lbs. | L78-15C & LR78-15C | 1909 lbs. |

Please note that this list is meant for comparison of tire capacities and not to indicate a replacement tire's compatibility with all vehicles. In all cases of tire replacement, the vehicle manufacturer's recommendations should be followed.

Selection of tire size and load range should be based on the highest individual wheel load of the vehicle, compared to the maximum tire capacity as shown. (Calculation of these maximum tire capacities is based on a truck service factor of 1.1 as specified by the T&RA and required by FMVSS 120.) In all cases, the tire capacity listed should exceed the maximum vehicle load on the tire for all wheel positions. Or, when replacing a specific size, load capacity should always be increased.

Chassis — Wheels and Tires

WHEEL AND TIRE COMBINATIONS AND TIRE INFLATION PRESSURES — RANGER AND BRONCO II

TIRE INFLATION PRESSURES

| Vehicle | Wheel-base | Gross Vehicle Weight (GVW) | Wheel | Tire | Recommended Cold Inflation Pressure | | | |
|-----------------------------|--------------------|----------------------------|-------------------|---------------|-------------------------------------|------|------------|------|
| | | | | | PSI | | Kilopascal | |
| | | | | | Front | Rear | Front | Rear |
| Ranger (4x2) | 108 inch (2743 mm) | 3780 | 14 x 5.0JJ* | P185/75R 14SL | 35 | 35 | 241 | 241 |
| | | | 14 x 5.0JJ*(1)(2) | P195/75R 14SL | 35 | 35 | 241 | 241 |
| | | | 14 x 5.5JJ | P205/75R 14SL | 35 | 35 | 241 | 241 |
| | | 4000 | 14 x 5.0JJ* | P185/75R 14SL | 35 | 35 | 241 | 241 |
| | | | 14 x 5.0JJ*(1)(2) | P195/75R 14SL | 35 | 35 | 241 | 241 |
| | | | 14 x 5.5JJ | P205/75R 14SL | 35 | 35 | 241 | 241 |
| | | 4220 | 14 x 5.5JJ* | P195/75R 14SL | 35 | 35 | 241 | 241 |
| | | | 14 x 5.5JJ | P205/75R 14SL | 35 | 35 | 241 | 241 |
| | | | 14 x 5.5JJ*(3) | P205/75R 14SL | 35 | 35 | 241 | 241 |
| | 114 inch (2896 mm) | 4440 | 14 x 5.5JJ* | P195/75R 14SL | 35 | 35 | 241 | 241 |
| | | | 14 x 5.5JJ | P205/75R 14SL | 35 | 35 | 241 | 241 |
| | | 3800 | 14 x 5.0JJ* | P185/75R 14SL | 35 | 35 | 241 | 241 |
| | | | 14 x 5.0JJ(1)(2) | P195/75R 14SL | 35 | 35 | 241 | 241 |
| | | | 14 x 5.5JJ | P205/75R 14SL | 35 | 35 | 241 | 241 |
| | | 4060 | 14 x 5.0JJ* | P185/75R 14SL | 35 | 35 | 241 | 241 |
| | | | 14 x 5.0JJ(1)(2) | P195/75R 14SL | 35 | 35 | 241 | 241 |
| | | | 14 x 5.5JJ | P205/75R 14SL | 35 | 35 | 241 | 241 |
| | | 4260 | 14 x 5.5JJ* | P195/75R 14SL | 35 | 35 | 241 | 241 |
| | | | 14 x 5.5JJ | P205/75R 14SL | 35 | 35 | 241 | 241 |
| | | | 14 x 5.5JJ*(3) | P205/75R 14SL | 35 | 35 | 241 | 241 |
| | | 4420 | 14 x 5.5JJ* | P195/75R 14SL | 35 | 35 | 241 | 241 |
| | | | 14 x 5.5JJ | P205/75R 14SL | 35 | 35 | 241 | 241 |
| | | 4500 | 14 x 5.5JJ* | P195/75R 14SL | 35 | 35 | 241 | 241 |
| | | | 14 x 5.5JJ | P205/75R 14SL | 35 | 35 | 241 | 241 |
| Ranger (4x2) Chassis Cab | 114 inch (2896 mm) | 4260 | 14 x 5.5JJ* | P195/75R 14SL | 35 | 35 | 241 | 241 |
| | | | 14 x 5.5JJ | P205/75R 14SL | 35 | 35 | 241 | 241 |
| | | 4420 | 14 x 5.5JJ* | P205/75R 14SL | 35 | 35 | 241 | 241 |
| | | 4880 | 14 x 6.0JJB* | P215/75R 14SL | 35 | 35 | 241 | 241 |
| Ranger (4x4) | 108 inch (2743 mm) | 4000 | 15 x 5.0JJ*(4) | P195/75R 15SL | 35 | 35 | 241 | 241 |
| | | | 15 x 5.5JJ | P205/75R 15SL | 35 | 35 | 241 | 241 |
| | | | 15 x 5.5JJ(5) | P215/75R 15SL | 35 | 35 | 241 | 241 |

Chassis — Wheels and Tires

WHEEL AND TIRE COMBINATIONS AND TIRE INFLATION PRESSURES — RANGER AND BRONCO II — CONT'D

TIRE INFLATION PRESSURES — CONT'D

| Vehicle | Wheel-base | Gross Vehicle Weight (GVW) | Wheel | Tire | Recommended Cold Inflation Pressure | | | |
|------------------------|-----------------------|----------------------------|-----------------|---------------|-------------------------------------|------|------------|------|
| | | | | | PSI | | Kilopascal | |
| | | | | | Front | Rear | Front | Rear |
| Ranger (4x4) Cont'd | 108 inch (2743 mm) | 4220 | 15 x 5.0 JJ*(4) | P195/75R 15SL | 35 | 35 | 241 | 241 |
| | | | 15 x 5.5 JJ | P205/75R 15SL | 35 | 35 | 241 | 241 |
| | | | 15 x 5.5 JJ(5) | P215/75R 15SL | 35 | 35 | 241 | 241 |
| | | 4440 | 15 x 5.5 JJ*(6) | P195/75R 15SL | 35 | 35 | 241 | 241 |
| | | | 15 x 5.5 JJ | P205/75R 15SL | 35 | 35 | 241 | 241 |
| | | | 15 x 5.5 JJ(5) | P215/75R 15SL | 35 | 35 | 241 | 241 |
| | 114 inch (2896 mm) | 4460 | 15 x 5.5 JJ* | P195/75R 15SL | 35 | 35 | 241 | 241 |
| | | | 15 x 5.5 JJ | P205/75R 15SL | 35 | 35 | 241 | 241 |
| | | | 15 x 5.5 JJ(5) | P215/75R 15SL | 35 | 35 | 241 | 241 |
| | | 4280 | 15 x 5.0 JJ*(4) | P195/75R 15SL | 35 | 35 | 241 | 241 |
| | | | 15 x 5.5 JJ | P205/75R 15SL | 35 | 35 | 241 | 241 |
| | | | 15 x 5.5 JJ | P215/75R 15SL | 35 | 35 | 241 | 241 |
| Bronco II (4x4) | 94 inch (2388 mm) | 4480 | 15 x 5.5 JJ*(6) | P195/75R 15SL | 35 | 35 | 241 | 241 |
| | | | 15 x 5.5 JJ | P205/75R 15SL | 35 | 35 | 241 | 241 |
| | | | 15 x 5.5 JJ(7) | P205/75R 15SL | 35 | 35 | 241 | 241 |
| | | 4500 | 15 x 5.5 JJ | P215/75R 15SL | 35 | 35 | 241 | 241 |
| | | | 15 x 5.5 JJ* | P195/75R 15SL | 35 | 35 | 241 | 241 |
| | | | 15 x 5.5 JJ | P205/75R 15SL | 35 | 35 | 241 | 241 |
| | | | 15 x 5.5 JJ | P215/75R 15SL | 35 | 35 | 241 | 241 |

Chassis — Wheels and Tires

WHEEL AND TIRE COMBINATIONS AND TIRE INFLATION PRESSURES — RANGER AND BRONCO II — CONT'D

TIRE INFLATION PRESSURES — CONT'D

| Vehicle | Wheel-base | Gross Vehicle Weight (GVW) | Wheel | Tire | Recommended Cold Inflation Pressure | | | |
|---------------------------|----------------------|----------------------------|------------------|---------------|-------------------------------------|------|------------|------|
| | | | | | PSI | | Kilopascal | |
| | | | | | Front | Rear | Front | Rear |
| Bronco II (4x4) Cont'd | 94 inch (2388 mm) | 3940 | 15 x 5.5 JJ*(4) | P195/75R 15SL | 35 | 35 | 241 | 241 |
| | | | 15 x 5.5 JJ | P205/75R 15SL | 35 | 35 | 241 | 241 |
| | | 4160 | 15 x 6.0 JJB*(4) | P195/75R 15SL | 35 | 35 | 241 | 241 |
| | | | 15 x 6.0 JJB | P205/75R 15SL | 35 | 35 | 241 | 241 |
| | | 4160 | 15 x 5.5 JJ*(4) | P195/75R 15SL | 35 | 35 | 241 | 241 |
| | | | 15 x 5.5 JJ | P205/75R 15SL | 35 | 35 | 241 | 241 |
| | | 4280 | 15 x 6.0 JJB*(4) | P195/75R 15SL | 35 | 35 | 241 | 241 |
| | | | 15 x 6.0 JJB | P205/75R 15SL | 35 | 35 | 241 | 241 |
| | | 4280 | 15 x 5.5 JJ*(4) | P195/75R 15SL | 35 | 35 | 241 | 241 |
| | | | 15 x 5.5 JJ | P205/75R 15SL | 35 | 35 | 241 | 241 |
| | | 4500 | 15 x 5.5 JJ*(7) | P205/75R 15SL | 35 | 35 | 241 | 241 |

NOTES:

- *Minimum wheel/tire sizes recommended for gross vehicle weight rating (front and rear). All other combinations are optional.
- (1) P195/75R 14SL minimum tire with 2.0/2.3L manual transmission and 3.73 axle.
- (2) White styled wheel option must have minimum of P195/75R 14SL tire.
- (3) Available on camper package only.
- (4) P195/75R 15 BSW Highway glass belt standard (steel optional).
- (5) Not available with auxiliary fuel tank option.
- (6) Steel belt optional.
- (7) Snow plow prep package or maximum front GAWR only.

For all tire installations on any vehicle

- Do not mix tire brands.
- Do not mix radials, bias or bias-belted tires.

Chassis — Wheels and Tires

WHEEL AND TIRE COMBINATIONS AND TIRE INFLATION PRESSURES — F-150-F-350 AND BRONCO

| Vehicle | Wheel-base | Gross Vehicle Weight (GVW) | Wheel | Tire | Recommended Cold Inflation Pressure | | | |
|------------------------|----------------------|----------------------------|----------------------|---------------|-------------------------------------|------|-----------------|------|
| | | | | | PSI | | Kilopascal(kPa) | |
| | | | | | Front | Rear | Front | Rear |
| F-150 (4x2) RC, SWB | 117 inch (2967mm) | 4800 | 15 x 5.5K* | P195/75R 15SL | 35 | 35 | 241 | 241 |
| | | | 15 x 5.5K | P215/75R 15SL | 35 | 35 | 241 | 241 |
| | | | 15 x 6.0JK | P235/75R 15XL | 35 | 41 | 241 | 283 |
| | | 5250 | 15 x 5.5K* | P215/75R 15SL | 35 | 35 | 241 | 241 |
| | | | 15 x 6.0JK | P235/75R 15XL | 35 | 41 | 241 | 283 |
| F-150 (4x2) RC, LWB | 133 inch (3378mm) | 4900 | 15 x 5.5K* | P195/75R 15SL | 35 | 35 | 241 | 241 |
| | | | 15 x 5.5K | P215/75R 15SL | 35 | 35 | 241 | 241 |
| | | | 15 x 6.0JK | P235/75R 15XL | 35 | 41 | 241 | 283 |
| | | 5450 | 15 x 5.5K* | P215/75R 15SL | 35 | 35 | 241 | 241 |
| | | | 15 x 6.0JK | P235/75R 15XL | 35 | 41 | 241 | 283 |
| | | 6100 | 15 x 6.0JK* | P235/75R 15XL | 41 | 41 | 283 | 283 |
| F-150 (4x2) SC, SWB | 139 inch (3526mm) | 6050 | 15 x 6.0JK* | P235/75R 15XL | 41 | 41 | 283 | 283 |
| F-150 (4x2) SC, LWB | 155 inch (3937mm) | 6250 | 15 x 6.0JK* | P235/75R 15XL | 41 | 41 | 283 | 283 |
| F-150 (4x4) RC, SWB | 117 inch (2967mm) | 6100 | 15 x 6.0JK* | P235/75R 15XL | 35 | 41 | 241 | 283 |
| F-150 (4x4) RC, LWB | 133 inch (3378mm) | 6250 | 15 x 6.0JK* | P235/75R 15XL | 35 | 41 | 241 | 283 |
| | | | 15 x 6.0JK(1) | P235/75R 15XL | 38 | 41 | 262 | 283 |
| F-150 (4x4) SC, LWB | 155 inch (3937mm) | 6450 | 15 x 6.0JK* | P235/75R 15XL | 35 | 41 | 241 | 283 |
| Bronco | 105 inch (2660mm) | 5950 | 15 x 6.0JK* | P235/75R 15XL | 35 | 41 | 241 | 283 |
| | | | 15 x 7.0JJ | 31-10.5RX 15C | 35 | 35 | 241 | 241 |
| | | | 15 x 6.0JK*(1)(2)(3) | P235/75R 15XL | 38 | 41 | 262 | 283 |
| | | | 15 x 7.0JJ | 31-10.5RX 15C | 40 | 40 | 276 | 276 |
| | 6300 | 15 x 6.0JK* | P235/75R 15XL | 35 | 41 | 241 | 283 | |
| | | | 15 x 7.0JJ | 31-10.5RX 15C | 40 | 40 | 276 | 276 |
| | | 15 x 6.0JK*(1)(2) | P235/75R 15XL | 38 | 41 | 262 | 283 | |
| | | 15 x 7.0JJ(1) | 31-10.5RX 15C | 40 | 40 | 276 | 276 | |
| | | | | | | | | |

Chassis — Wheels and Tires

WHEEL AND TIRE COMBINATIONS AND TIRE INFLATION PRESSURES — F-150-F-350 AND BRONCO — CONT'D

| Vehicle | Wheel-base | Gross Vehicle Weight (GVW) | Wheel | Tire | Recommended Cold Inflation Pressure | | | |
|--------------------|----------------------|----------------------------|-------------|---------------|-------------------------------------|------|-----------------|------|
| | | | | | PSI | | Kilopascal(kPa) | |
| | | | | | Front | Rear | Front | Rear |
| F-250 (4x2) RC | 133 inch (3378mm) | 6300 | 16 x 6K* | LT215/85R 16C | 51 | 51 | 352 | 352 |
| | | | 16 x 6K | LT215/85R 16D | 51 | 51 | 352 | 352 |
| | | | 16 x 6K | LT235/85R 16D | 44 | 44 | 303 | 303 |
| | | | 16 x 6K | LT235/85R 16E | 44 | 44 | 303 | 303 |
| | | | 16 x 6K | 7.50R-16D | 40 | 50 | 276 | 345 |
| | 7300 | 16 x 6K* | 16 x 6K* | LT235/85R 16D | 44 | 65 | 303 | 448 |
| | | | 16 x 6K | LT235/85R 16E | 44 | 65 | 303 | 448 |
| | | 16 x 6K* | 16 x 6K* | LT235/85R 16D | 44 | 65 | 303 | 448 |
| | | | 16 x 6K | LT235/85R 16E | 44 | 65 | 303 | 448 |
| | | 8600 | 16 x 6K* | LT235/85R 16E | 51 | 80 | 352 | 552 |
| F-250 (4x2) CHC | 133 inch (3378mm) | 8600 | 16 x 6K* | LT235/85R 16E | 51 | 80 | 352 | 552 |
| F-250 (4x2) SC | 155 inch (3937mm) | 8800 | 16 x 6K* | LT235/85R 16E | 51 | 80 | 352 | 552 |
| F-250 (4x4) RC | 133 inch (3378mm) | 6600 | 16 x 6K* | LT215/85R 16C | 51 | 51 | 352 | 352 |
| | | | 16 x 6K | LT215/85R 16D | 51 | 51 | 352 | 352 |
| | | | 16 x 6K | LT235/85R 16D | 44 | 44 | 303 | 303 |
| | | | 16 x 6K | LT235/85R 16E | 44 | 44 | 303 | 303 |
| | | | 16 x 6K | 7.50R-16D | 45 | 50 | 310 | 345 |
| | 6600 | 16 x 6K(4) | 16 x 6K(4) | LT215/85R 16D | 51 | 65 | 352 | 448 |
| | | | 16 x 6K(4) | LT235/85R 16D | 51 | 51 | 352 | 352 |
| | | | 16 x 6K(4) | LT235/85R 16E | 44 | 44 | 303 | 303 |
| | | | 16 x 6K(4) | 7.50R-16D | 45 | 50 | 310 | 345 |
| | 6600 | 16 x 6K*(5) | 16 x 6K*(5) | LT215/85R 16D | 65 | 65 | 448 | 448 |
| | | | 16 x 6K(5) | LT235/85R 16D | 58 | 58 | 400 | 400 |
| | | | 16 x 6K(5) | LT235/85R 16E | 58 | 58 | 400 | 400 |
| | | | 16 x 6K(5) | 7.50R-16D | 60 | 60 | 414 | 414 |
| | 8600 | 16 x 6K* | 16 x 6K* | LT235/85R 16E | 44 | 80 | 303 | 552 |
| | | | 16 x 6K(4) | LT235/85R 16E | 44 | 80 | 303 | 552 |
| | | | 16 x 6K(5) | LT235/85R 16E | 58 | 80 | 400 | 552 |

Chassis — Wheels and Tires

WHEEL AND TIRE COMBINATIONS AND TIRE INFLATION PRESSURES — F-150-F-350 AND BRONCO — CONT'D

| Vehicle | Wheel-base | Gross Vehicle Weight (GVW) | Wheel | Tire | Recommended Cold Inflation Pressure | | | |
|-------------------------|----------------------|----------------------------|---------------|---------------|-------------------------------------|------|-----------------|------|
| | | | | | PSI | | Kilopascal(kPa) | |
| | | | | | Front | Rear | Front | Rear |
| F-250 (4x4) SC | 155 inch (3937mm) | 8600 | 16 x 6K* | LT235/85R 16E | 51 | 80 | 352 | 552 |
| | | | 16 x 6K(1)(4) | LT235/85R 16E | 58 | 80 | 400 | 552 |
| F-350 (4x2) S/R, RC | 133 inch (3378mm) | 8700 | 16 x 6K* | LT235/85R 16E | 51 | 80 | 352 | 552 |
| F-350 (4x2) CHC | 137 inch (3475mm) | 8700 | 16 x 6K* | LT235/85R 16E | 51 | 80 | 352 | 552 |
| F-350 (4x2) CHC | 161 inch (4085mm) | 9000 | 16 x 6K* | LT235/85R 16E | 51 | 80 | 352 | 552 |
| F-350 (4x2) Crew Cab | 168 inch (4278mm) | 8700 | 16 x 6K* | LT235/85R 16E | 51 | 80 | 352 | 552 |
| | | | 16 x 6K* | LT235/85R 16E | 51 | 80 | 352 | 552 |
| F-350 (4x4) RC | 133 inch (3378mm) | 9000 | 16 x 6K* | LT235/85R 16E | 51 | 80 | 352 | 552 |
| | | | 16 x 6K(1) | LT235/85R 16E | 65 | 80 | 448 | 552 |
| | | 10100 | 16 x 6K | LT235/85R 16E | 65 | 80 | 448 | 552 |
| F-350 (4x4) CHC | 133 inch (3378mm) | 9000 | 16 x 6K* | LT235/85R 16E | 51 | 80 | 352 | 552 |
| F-350 (4x4) Crew Cab | 168 inch (4278mm) | 9300 | 16 x 6K* | LT235/85R 16E | 51 | 80 | 352 | 552 |
| | | | 16 x 6K(1) | LT235/85R 16E | 58 | 80 | 400 | 552 |
| F-350 D/R, RC | 133 inch (3378mm) | 10000 | 16 x 6K* | LT215/85R 16D | 58 | 65 | 400 | 448 |
| | | | 16 x 6K(6) | 7.50-16D | 45 | 60 | 310 | 414 |
| F-350 D/R, SWB, CHC | 137 inch (3475mm) | 10000 | 16 x 6K* | LT215/85R 16D | 58 | 58 | 400 | 400 |
| | | | 16 x 6K(6) | 7.50-16D | 45 | 50 | 310 | 345 |
| | | 11000 | 16 x 6K* | LT215/85R 16D | 58 | 65 | 400 | 448 |
| | | | 16 x 6K(6) | 7.50-16D | 50 | 60 | 345 | 414 |
| F-350 D/R, LWB, CHC | 161 inch (4085mm) | 10000 | 16 x 6K* | LT215/85R 16D | 58 | 58 | 400 | 400 |
| | | | 16 x 6K(6) | 7.50-16D | 45 | 50 | 310 | 345 |
| | | 11000 | 16 x 6K* | LT215/85R 16D | 58 | 65 | 400 | 448 |
| | | | 16 x 6K(6) | 7.50-16D | 50 | 60 | 345 | 414 |
| F-350 D/R Crew Cab | 168 inch (4278mm) | 10000 | 16 x 6K* | LT215/85R 16D | 58 | 65 | 400 | 448 |
| | | | 16 x 6K | 7.50-16D | 45 | 60 | 310 | 414 |

Chassis — Wheels and Tires

WHEEL AND TIRE COMBINATIONS AND TIRE INFLATION PRESSURES — F-150-F-350 AND BRONCO — CONT'D

| Vehicle | Wheel-base | Gross Vehicle Weight (GVW) | Wheel | Tire | Recommended Cold Inflation Pressure | | | |
|----------------------|-------------------|----------------------------|----------|---------------|-------------------------------------|------|-----------------|------|
| | | | | | PSI | | Kilopascal(kPa) | |
| | | | | | Front | Rear | Front | Rear |
| F-350 D/R (4x4), CHC | 137 inch (3475mm) | 11000 | 16 x 6K* | LT235/85R 16E | 65 | 65 | 448 | 448 |

NOTES:

*Minimum wheel/tire sizes recommended for gross vehicle weight rating (front and rear). All other combinations are optional.

(1) Vehicles for heavy duty front end option. Bronco, F-150 4x4 and F-350 4x4.

(2) Vehicles with snow plow prep option.

(3) 49 state vehicles only.

(4) Heavy duty front end option A for F-250 4x4.

(5) Heavy duty front end option B for F-250 4x4.

(6) Vehicles for Canada only.

For all tire installations on any vehicle:

- Do not mix tire brands.
- Do not mix radials, bias or bias-belted tires.

Chassis — Wheels and Tires

WHEEL AND TIRE COMBINATIONS AND TIRE INFLATION PRESSURES — E-150-E-350

| Vehicle | Wheelbase | Gross Vehicle Weight (GVW) | Wheel | Tire | Recommended Cold Inflation Pressure | | | |
|------------------------|-----------------------|----------------------------|----------------------|---------------|-------------------------------------|------|------------------|------|
| | | | | | PSI | | Kilopascal (kPa) | |
| | | | | | Front | Rear | Front | Rear |
| F-150 (4x2) RC, SWB | 117 inch (2967 mm) | 4800 | 15 x 5.5K* | P195/75R 15SL | 35 | 35 | 241 | 241 |
| | | | 15 x 5.5K | P215/75R 15SL | 35 | 35 | 241 | 241 |
| | | | 15 x 6.0JK | P235/75R 15XL | 35 | 41 | 241 | 283 |
| | | 5250 | 15 x 5.5K* | P215/75R 15SL | 35 | 35 | 241 | 241 |
| | | | 15 x 6.0JK | P235/75R 15XL | 35 | 41 | 241 | 283 |
| F-150 (4x2) RC, LWB | 133 inch (3378 mm) | 4900 | 15 x 5.5K* | P195/75R 15SL | 35 | 35 | 241 | 241 |
| | | | 15 x 5.5K | P215/75R 15SL | 35 | 35 | 241 | 241 |
| | | | 15 x 6.0JK | P235/75R 15XL | 35 | 41 | 241 | 283 |
| | | 5450 | 15 x 5.5K* | P215/75R 15SL | 35 | 35 | 241 | 241 |
| | | | 15 x 6.0JK | P235/75R 15XL | 35 | 41 | 241 | 283 |
| | | | 15 x 6.0JK* | P235/75R 15XL | 41 | 41 | 283 | 283 |
| F-150 (4x2) SC, LWB | 139 inch (3526 mm) | 6050 | 15 x 6.0JK* | P235/75R 15XL | 41 | 41 | 283 | 283 |
| F-150 (4x2) SC, SWB | 155 inch (3937 mm) | 6250 | 15 x 6.0JK* | P235/75R 15XL | 41 | 41 | 283 | 283 |
| F-150 (4x4) RC, SWB | 117 inch (2967 mm) | 6100 | 15 x 6.0JK* | P235/75R 15XL | 35 | 41 | 241 | 283 |
| F-150 (4x4) RC, LWB | 133 inch (3376 mm) | 6250 | 15 x 6.0JK* | P235/75R 15XL | 35 | 41 | 241 | 283 |
| | | | 15 x 6.0JK(1) | P235/75R 15XL | 38 | 41 | 262 | 283 |
| F-150 (4x4) SC, LWB | 155 inch (3937 mm) | 6450 | 15 x 6.0JK* | P235/75R 15XL | 35 | 41 | 241 | 283 |
| Bronco | 105 inch (2660 mm) | 5950 | 15 x 6.0JK* | P235/75R 15XL | 35 | 41 | 241 | 283 |
| | | | 15 x 7.0JJ | 31-10.5RX 15C | 35 | 35 | 241 | 241 |
| | | | 15 x 6.0JK*(1)(2)(3) | P235/75R 15XL | 38 | 41 | 262 | 283 |
| | | | 15 x 7.0JJ | 31-10.5RX 15C | 40 | 40 | 276 | 276 |
| | 6300 | 6300 | 15 x 6.0JK* | P235/75R 15XL | 35 | 41 | 241 | 283 |
| | | | 15 x 7.0JJ | 31-10.5RX 15C | 40 | 40 | 276 | 276 |
| | | 6300 | 15 x 6.0JK*(1)(2) | P235/75R 15XL | 38 | 41 | 262 | 283 |
| | | | 15 x 7.0JJ(1) | 31-10.5RX 15C | 40 | 40 | 276 | 276 |

Chassis — Wheels and Tires

WHEEL AND TIRE COMBINATIONS AND TIRE INFLATION PRESSURES — E-150-E-350 — CONT'D

| Vehicle | Wheelbase | Gross Vehicle Weight (GVW) | Wheel | Tire | Recommended Cold Inflation Pressure | | | |
|-----------------|--------------------|----------------------------|-------------|---------------|-------------------------------------|------|------------------|------|
| | | | | | PSI | | Kilopascal (kPa) | |
| | | | | | Front | Rear | Front | Rear |
| F-250 (4x2) RC | 133 inch (3378 mm) | 6300 | 16 x 6K* | LT215/85R 16C | 51 | 51 | 352 | 352 |
| | | | 16 x 6K | LT215/85R 16D | 51 | 51 | 352 | 352 |
| | | | 16 x 6K | LT235/85R 16D | 44 | 44 | 303 | 303 |
| | | | 16 x 6K | LT235/85R 16E | 44 | 44 | 303 | 303 |
| | | | 16 x 6K | 7.50R 16D | 40 | 50 | 276 | 345 |
| | | 7300 | 16 x 6K* | LT235/85R 16D | 44 | 65 | 303 | 448 |
| | | | 16 x 6K | LT235/85R 16E | 44 | 65 | 303 | 448 |
| | | 7800 | 16 x 6K* | LT235/85R 16D | 44 | 65 | 303 | 448 |
| | | | 16 x 6K | LT235/85R 16E | 44 | 65 | 303 | 448 |
| | | 8600 | 16 x 6K* | LT235/85R 16E | 51 | 80 | 352 | 552 |
| F-250 (4x2) CHC | 133 inch (3378 mm) | 8600 | 16 x 6K* | LT235/85R 16E | 51 | 80 | 352 | 552 |
| F-250 (4x2) SC | 155 inch (3937 mm) | 8800 | 16 x 6K* | LT235/85R 16E | 51 | 80 | 352 | 552 |
| F-250 (4x4) RC | 133 inch (3378 mm) | 6600 | 16 x 6K* | LT215/85R 16C | 51 | 51 | 352 | 352 |
| | | | 16 x 6K | LT215/85R 16D | 51 | 51 | 352 | 352 |
| | | | 16 x 6K | LT235/85R 16D | 44 | 44 | 303 | 303 |
| | | | 16 x 6K | LT235/85R 16E | 44 | 44 | 303 | 303 |
| | | | 16 x 6K | 7.50R 16D | 45 | 50 | 310 | 345 |
| | | 6600 | 16 x 6K(4) | LT215/85R 16D | 51 | 65 | 352 | 448 |
| | | | 16 x 6K(4) | LT235/85R 16D | 51 | 51 | 352 | 352 |
| | | | 16 x 6K(4) | LT235/85R 16E | 44 | 44 | 303 | 303 |
| | | | 16 x 6K(4) | 7.50R 16D | 45 | 50 | 310 | 345 |
| | | 6600 | 16 x 6K*(5) | LT215/85R 16D | 65 | 65 | 448 | 448 |
| | | | 16 x 6K(5) | LT235/85R 16D | 58 | 58 | 400 | 400 |
| | | | 16 x 6K(5) | LT235/85R 16E | 58 | 58 | 400 | 400 |
| | | | 16 x 6K(5) | 7.50R 16D | 60 | 60 | 414 | 414 |
| | | 8600 | 16 x 6K* | LT235/85R 16E | 44 | 80 | 303 | 552 |
| | | | 16 x 6K(4) | LT235/85R 16E | 44 | 80 | 303 | 552 |
| | | | 16 x 6K(5) | LT235/85R 16E | 58 | 80 | 400 | 552 |

Chassis — Wheels and Tires

WHEEL AND TIRE COMBINATIONS AND TIRE INFLATION PRESSURES — E-150-E-350 — CONT'D

| Vehicle | Wheelbase | Gross Vehicle Weight (GVW) | Wheel | Tire | Recommended Cold Inflation Pressure | | | |
|----------------------|-----------------------|----------------------------|---------------|---------------|-------------------------------------|------|------------------|------|
| | | | | | PSI | | Kilopascal (kPa) | |
| | | | | | Front | Rear | Front | Rear |
| F-250 (4x4) SC | 155 inch (3937 mm) | 8600 | 16 x 6K* | LT235/85R 16E | 51 | 80 | 352 | 552 |
| | | | 16 x 6K(1)(4) | LT235/85R 16E | 58 | 80 | 400 | 552 |
| F-350 (4x2) S/R, RC | 133 inch (3378 mm) | 8700 | 16 x 6K* | LT235/85R 16E | 51 | 80 | 352 | 552 |
| F-350 (4x2) CHC | 137 inch (3475 mm) | 8700 | 16 x 6K* | LT235/85R 16E | 51 | 80 | 352 | 552 |
| F-350 (4x2) CHC | 161 inch (4085 mm) | 9000 | 16 x 6K* | LT235/85R 16E | 51 | 80 | 352 | 552 |
| F-350 (4x2) Crew Cab | 168 inch (4278 mm) | 8700 | 16 x 6K* | LT235/85R 16E | 51 | 80 | 352 | 552 |
| | | | 16 x 6K* | LT235/85R 16E | 51 | 80 | 352 | 552 |
| F-350 (4x4) RC | 133 inch (3378 mm) | 9000 | 16 x 6K* | LT235/85R 16E | 51 | 80 | 352 | 552 |
| | | | 16 x 6K(1) | LT235/85R 16E | 65 | 80 | 448 | 552 |
| | | | 10,100 | 16 x 6K | LT235/85R 16E | 65 | 80 | 448 |
| F-350 (4x4) CHC | 133 inch (3378 mm) | 9000 | 16 x 6K* | LT235/85R 16E | 51 | 80 | 352 | 552 |
| F-350 (4x4) Crew Cab | 168 inch (4278 mm) | 9300 | 16 x 6K* | LT235/85R 16E | 51 | 80 | 352 | 552 |
| | | | 16 x 6K(1) | LT235/85R 16E | 58 | 80 | 400 | 552 |
| F-350 D/R, RC | 133 inch (3378 mm) | 10,000 | 16 x 6K* | LT215/85R 16D | 58 | 65 | 400 | 448 |
| | | | 16 x 6K(6) | 7.50R 16D | 45 | 60 | 310 | 414 |
| F-350 D/R, SWB CHC | 137 inch (3475 mm) | 10,000 | 16 x 6K* | LT215/85R 16D | 58 | 58 | 400 | 400 |
| | | | 16 x 6K(6) | 7.50R 16D | 45 | 50 | 310 | 345 |
| | | 11,000 | 16 x 6K* | LT215/85R 16D | 58 | 65 | 400 | 448 |
| | | | 16 x 6K(6) | 7.50 16D | 50 | 60 | 345 | 414 |

Chassis — Wheels and Tires

WHEEL AND TIRE COMBINATIONS AND TIRE INFLATION PRESSURES — E-150-E-350 — CONT'D

| Vehicle | Wheelbase | Gross Vehicle Weight (GVW) | Wheel | Tire | Recommended Cold Inflation Pressure | | | |
|------------------------|-----------------------|----------------------------|------------|---------------|-------------------------------------|------|------------------|------|
| | | | | | PSI | | Kilopascal (kPa) | |
| | | | | | Front | Rear | Front | Rear |
| F-350 D/R, LWB, CHC | 161 inch (4085 mm) | 10,000 | 16 x 6K* | LT215/85R 16D | 58 | 58 | 400 | 400 |
| | | | 16 x 6K(6) | 7.50 16D | 45 | 50 | 310 | 345 |
| | | 11,000 | 16 x 6K* | LT215/85R 16D | 58 | 65 | 400 | 448 |
| | | | 16 x 6K(6) | 7.50 16D | 50 | 60 | 345 | 414 |
| F-350 D/R Crew Cab | 168 inch (4278 mm) | 10,000 | 16 x 6K* | LT215/85R 16D | 58 | 65 | 400 | 448 |
| | | | 16 x 6K | 7.50 16D | 45 | 60 | 310 | 414 |
| F-350 D/R (4x4) CHC | 137 inch (3475 mm) | 11,000 | 16 x 6K* | LT235/85R 16E | 65 | 65 | 448 | 448 |

NOTES:

- * Minimum wheel/tire sizes recommended for gross vehicle weight rating (front and rear). All other combinations are optional.
- (1) Vehicles for heavy duty front end option. Bronco, F-150 4x4 and F-350 4x4.
- (2) Vehicles with snow plow prep option.
- (3) 49 State vehicles only.
- (4) Heavy duty front end option A for F-250 4x4.
- (5) Heavy duty front end option B for F-250 4x4.
- (6) Vehicles for Canada only.

For all tire installations on any vehicle:

- Do not mix tire brands.
- Do not mix radials, bias or bias-belted tires.

Chassis — Wheels and Tires

TORQUE SPECIFICATIONS

Lug Nuts — F-150 Through F-350, E-150 Through E-350 Bronco

| Vehicle | Wheel | Bolt Size | Torque (1) | |
|--|-------------|-----------|------------|---------|
| | | | N·m | ft-lbs |
| E-150, F-150, Bronco | 5-Lug Wheel | 1/2-20 | 115-156 | 85-115 |
| E-250, F-250 (Under 8,500 GVW) | 8-Lug Wheel | 1/2-20 | 115-156 | 85-115 |
| E-250, E-350, F-250 (Over 8,500 GVW) F-350 — Single Rear Wheel Vehicles | 8-Lug Wheel | 9/16-18 | 156-237 | 115-175 |
| E-350, F-350 — Dual Rear Wheel Vehicles with Integral Two-Piece Swiveling Lug Nuts | 8-Lug Wheel | 9/16-18 | 169-210 | 125-155 |

(1) Torque Specifications are for clean, dirt-and-paint-free dry bolt and nut threads.

Wheel Hubs and Bearings

| Vehicle | Component | N·m | ft-lb |
|------------|-----------------------------------|-------|-------|
| Ranger 4x2 | Front Wheel Bearing Adjusting Nut | 24-33 | 17-25 |

Chassis — Wheels and Tires

TORQUE SPECIFICATIONS — CONT'D

Wheel Hubs and Bearings

| Vehicle | Component | N·m | Ft-Lb |
|---------------------------|--|---------|---------|
| F-250/350 (4x4) | Front wheel bearing outer lock nut | 88 | 65 |
| Bronco F-150/250 (4x4) | Spindle retaining nuts | 27-41 | 20-30 |
| F-350 (4x4) | Spindle retaining nuts | 68-81 | 50-60 |
| F-350 (4x2) E-350 | Full floating rear axle adjusting nut (2) | 163-189 | 120-140 |
| F-350 (4x2) E-350 | Full floating rear axle lock bolts | 55-67 | 40-50 |

(2) After tightening, back off 1/8-3/8 turn, or enough to provide 0.025-0.254mm (0.001-0.010 inch) end play.

- (1) Vehicles for heavy duty front end option, Bronco, F-150 4x4 and F-350 4x4
- (2) Vehicles with snow plow prep option
- (3) 49 State vehicles only
- (4) Heavy duty front end option A for F-250 4x4
- (5) Heavy duty front end option B for F-250 4x4
- (6) Vehicles for Canada only

For all tire installations on any vehicle:

- Do not mix tire brands.
- Do not mix radials, bias or bias-belted tires.

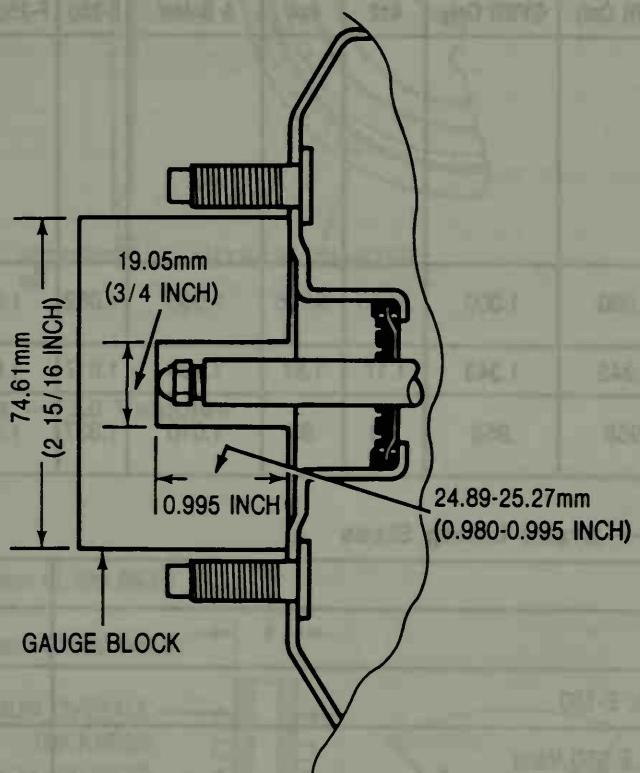
Chassis — Brakes

SERVICE SPECIFICATIONS

Brake Pedal Free Travel — All Vehicles

Brake pedal free travel should not exceed half the distance to the floor.

Bendix Push Rod Gauge Dimensions and Adjustment — All Vehicles



Chassis — Brakes

SERVICE SPECIFICATIONS — CONT'D

Master Cylinder Specifications

| Truck Series | For Manual Operation | | | | With Power Booster | | | | |
|-------------------------|--|--|---------------|---------------|---|-------|--------------------------------|-------------|-------|
| | (Delete Option Only) E-150 Base GVWR Only | (Delete Option Only) F-150 Base GVWR Only | Ranger 4x2 | Ranger 4x4 | E-150 F-150 (4x2) F-150 (4x4) Bronco F-250 (4x2) 6900 GVWR & Below | E-250 | F-250 (4x2) Above 6900 GVWR | F-250 (4x4) | E-350 |
| Part Number | | | | | | | | | |
| Piston Diameter | 1.000 | 1.000 | .9375 | .9375 | 1.000 | 1.062 | 1.062 | 1.062 | 1.062 |
| Stroke (in.) | 1.343 | 1.343 | 1.17 | 1.37 | 1.408 | 1.617 | 1.617 | 1.617 | 1.617 |
| Displ. (Min.) (cu. in.) | .958 | .958 | .73 | .85 | 1.010 | 1.337 | 1.337 | 1.337 | 1.337 |

Drum Brakes — Brake Lining Sizes

| Vehicle | Lining Size |
|---|-------------------|
| Ranger | 9" x 1 3/4" |
| F-150, Bronco, E-150 | 11 1/32" x 2 1/4" |
| F-250, E-250, E-350 Vans | 12" x 2 1/2" |
| F-250 HD, F-350, E-350 Super Wagon and Parcel Delivery Van | 12" x 3" |

Drum Runout — Measured 19.05mm (3/4 inch)

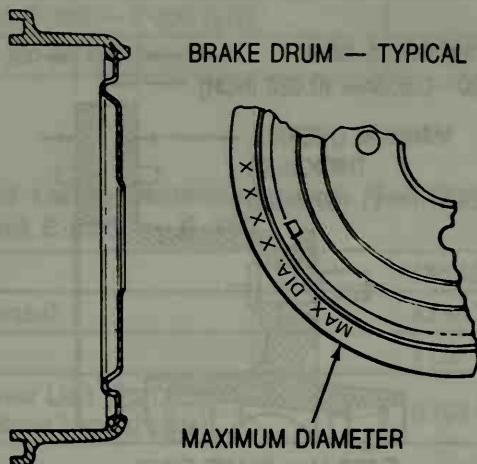
11, 12 inch Brakes..... 0.177mm (0.007 inch) TIR Maximum

SERVICE SPECIFICATIONS — CONT'D

Drum Brakes — Cont'd

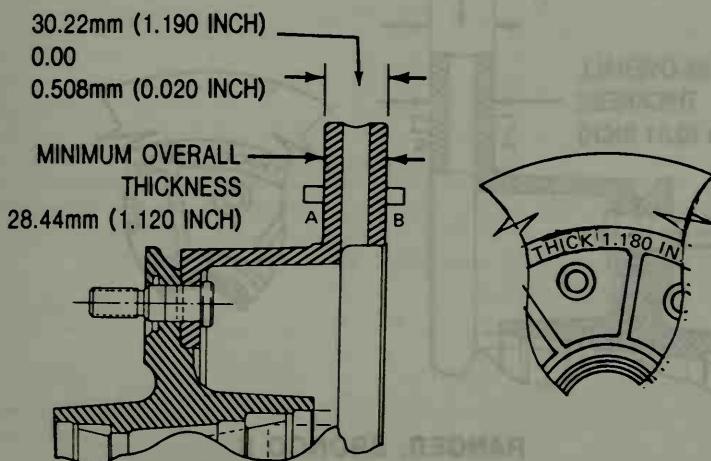
Maximum Inside Braking Surface Diameter Marking Location — All Vehicles

Rear Brakes



Disc Brakes

Rotor Service Limits — All Vehicles



F-150 (4 x 2) F-150 (4 x 4) E-150
AND BRONCO, F-250 (4 x 2), F-250 6900 GVWR

Chassis — Brakes

SERVICE SPECIFICATIONS — CONT'D

Disc Brakes

Rotor Service Limits — All Vehicles — Cont'd

| Truck Series | (Delete Option Only) | E-150 Base GVMR Only | Maximum Brake Rotor Thickness | | | Rotor Brakes — Cont'd |
|----------------------------|------------------------------|-------------------------|---|-------|-----------------------|----------------------------------|
| | | | E-150 | F-150 | N/A | |
| | | | 31.75mm (1.25 INCH) +0.00—0.508mm (0.020 INCH) | | | F-250 (4x2) Above 6800 GVW |
| | | | MINIMUM OVERALL THICKNESS | | | F-250 (4x4) E-350 |
| | | | 29.97mm (1.180 INCH) | | | F-350 HD (Over 6800 GVW) |
| Part Number | | | | | | |
| Piston Diameter | 1.000 | 1.000 | | | | |
| Stroke (in.) | 1.343 | 1.343 | 1.17 | 1.37 | 1.403 | 1.817 |
| Displ. (Min.) (cu. in.) | .958 | .958 | .73 | .85 | All Vehicles 1.010 | 1.337 |
| | 24.89mm (0.98 INCH) +0.00 | | | | | |
| Drum Brake | | 0.508mm (0.020 INCH) | | | | |

**F-250 (4 x 4) AND F-250
ABOVE 6800 GVW (4 x 2) E-250-350**

Drum Brake — Sizes

| Vehicle | Thickness Size | |
|--------------------------------------|---------------------|---------------------|
| | 0.00 | 0.050 INCH |
| Ranger | 0.00 | 0.050 INCH |
| F-150, E-150 | 20.57mm (0.81 INCH) | 20.57mm (0.81 INCH) |
| F-250, E-250, F-350, E-350 Super Cab | 20.57mm (0.81 INCH) | 20.57mm (0.81 INCH) |
| F-250 HD, F-350 HD | 20.57mm (0.81 INCH) | 20.57mm (0.81 INCH) |
| RANGER, BRONCO II | 20.57mm (0.81 INCH) | 20.57mm (0.81 INCH) |

Drum Runout
11, 12 inch Brakes.....

(3/4 Inch)

(1/2 Inch) TIR Maximum

AND BRONCO, F-150 (4 x 2) F-150 (4 x 4) E-150
F-150 (4 x 2) F-150 (4 x 4) E-150

Chassis — Brakes

SERVICE SPECIFICATIONS — CONT'D

Disc Brakes — Cont'd

Brake Lining Material — F-150-350, Bronco, E-150-350

| Application | Material |
|------------------------------------|------------------|
| E-150 — E-350, F-150 — F-350 (4x2) | Bendix FMD 7133 |
| F-150 — F-350 (4x4) and Bronco | Bendix FMD 7161A |

Disc Brake Shoe and Lining Dimensions H.D. Rail Sliding Caliper F-250 — F-350 (4x2) (4x4) and E-250 — E-350

| | |
|--|-------------------------------|
| Lining length | 188.46 mm (7.42 inch) |
| Lining area (per brake) | 83.68 cm (12.97 inch) |
| Lining thickness | 11.07 mm (0.436 inch) minimum |
| Lining maximum wear limit (from front surface of shoe above backing plate) | 0.793 mm (1/32 inch) |

Chassis — Brakes

SERVICE SPECIFICATIONS — CONT'D

Disc Brakes — Cont'd

Rotor Base Line Setting and Minimum Thickness — Ranger

| Vehicle | Base Line Setting | Rotor Minimum Thickness |
|--|---------------------------|-------------------------|
| | 54mm Ball (2-125 Inch) | (1) |
| Ranger and Bronco II | 6.50mm (0.256 Inch) | 20.6mm (0.81 Inch) |
| (1) Rotors having a thickness less than shown here must be replaced regardless of the micrometer gauge bar and ball measurement. | | |

Rotor Repair Dimensions — E-F-150-350, Bronco

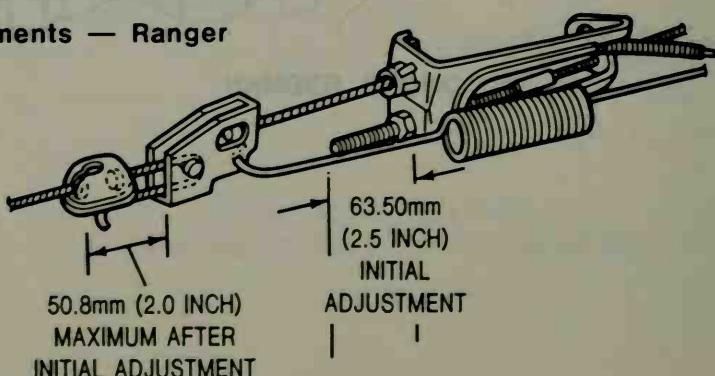
| Description | Application | MM | Inch |
|--|--|-------------|--------|
| Minimum rotor thickness (Discard thickness) | | 20.57 | 0.81 |
| | Bronco, F-150 (4x4) | 28.44 | 1.12 |
| | F-250 (4x4) | 29.97 | 1.18 |
| | F-150/F-250 (6200/6900 GVWR) | | |
| | L.D. integral hub and rotor | 28.44 | 1.12 |
| | H.D. integral hub and rotor | 29.97 | 1.18 |
| | 2-Piece hub and rotor | 29.97 | 1.18 |
| Rotor thickness maximum variation | Integral hub and rotor | 0.0127 | 0.0005 |
| | Integral hub and rotor — F-150/F-350 (4x4) and Bronco | 0.0177 | 0.0007 |
| | Separate hub and rotor | 0.127 | 0.005 |
| Lateral runout (maximum) (1) (2) | Integral hub and rotor | 0.0762 | 0.003 |
| | Separate hub and rotor | 0.254 | 0.010 |
| Rotor Surface finish | | 5-80 R.M.S. | |

(1) Total indicator rating on both surfaces at inside diameter.

(2) 152 mm (6 inch) diameter.

Parking Brake

Initial Adjustments — Ranger

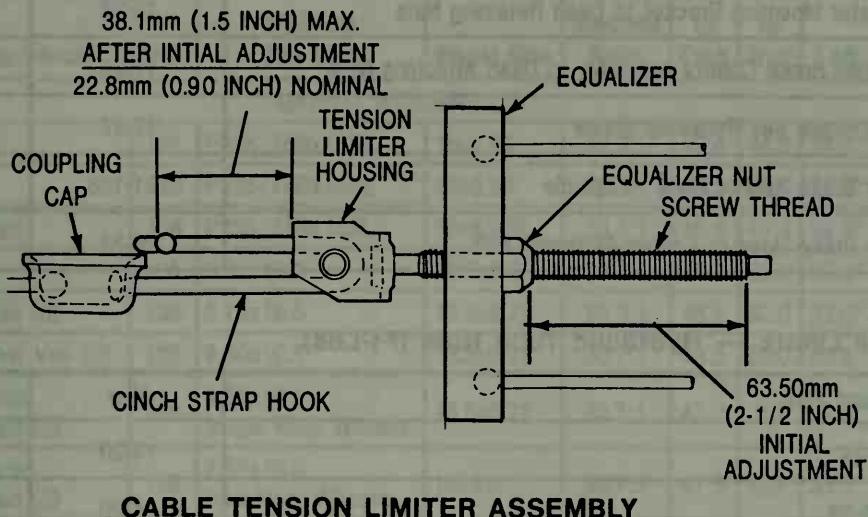


Chassis — Brakes

SERVICE SPECIFICATIONS — CONT'D

Disc Brakes — Cont'd

Initial Adjustments — E,F-150-350, Bronco



CABLE TENSION LIMITER ASSEMBLY

Parking Brake Cable Tension Adjustment — All Vehicles

| Model | Rear Cable Tension(1) | |
|-------------|-----------------------|-----------|
| | Lbs. | Newtons |
| Ranger | 400-600 | 1780-2670 |
| F-150/F-350 | 350 Min. | 1556 |
| Bronco | 350 Min. | 1556 |
| E-150/E-350 | 350 Min. | 1556 |

(1) Check rear cable tension with the parking brake control fully in the last detent position.

Brake Booster Application

| Vehicle | Type | Effective Diameter |
|--|------------------|--------------------|
| Ranger (4x4) | Single Diaphragm | 7.87" (200mm) |
| E-150 | Single Diaphragm | 9.30" (236mm) |
| Bronco | Single Diaphragm | 9.84" (250mm) |
| F-150/250 F-350 Crew Cab (4x4) | Single Diaphragm | 9.93" (252mm) |
| E-250 | Dual Diaphragm | 10" (254mm) |
| F-250 HD, F-350 (except 4x4 Crew Cab), E-350 | Dual Diaphragm | 11.18" (283mm) |

Chassis — Brakes

TORQUE SPECIFICATIONS

| Description | N·m | Ft-Lb |
|---|---------|--------|
| Master Cylinder Retaining Bolts | 11-28 | 14-20 |
| Booster Mounting Bracket to Dash Retaining Nuts | 18-33 | 13-25 |
| Parking Brake Control Assembly to Dash Attaching Nuts | 17-23 | 12-17 |
| Disc Brake Key Retaining Screw | 17-27 | 12-20 |
| Disc Brake Anchor Plate to Spindle | 101-138 | 74-102 |
| Disc Brake Hose to Caliper Attaching Bolt | 24-33 | 17-25 |

Torque Limits — Hydraulic Tube Nuts (Ft-Lbs)

| Thread Size | N·m | Ft-Lb (1) |
|-------------|-------|-----------|
| 3/8-24 | 14-20 | 10-15 |
| 7/16-24 | 14-20 | 10-15 |
| 1/2-20 | 14-23 | 10-17 |
| 9/16-18 | 14-23 | 10-17 |

- (1) All hydraulic line connections (nuts) must be tightened to the specified value and free of fluid leakage.

Chassis — Steering

TURNING DIAMETERS — ECONOLINE

| Truck Series/Model | W.B. | Minimum Tire Size | Wheel Size | Overall Steering Ratio | Turning Dia. (1) Feet | | Inside Wheel Turn Angle | |
|--|------|---------------------------------|------------|---|-----------------------------|--------------------|-------------------------------|-------|
| | | | | | Curb to Curb | Wall to Wall | Left | Right |
| MANUAL STEERING (2) | | | | | | | | |
| E-150 Van | 124 | P205/75Rx15SL | 15x5.5K | 29.3:1 | 42.4 | 44.2 | 34.4° | 34.4° |
| E-150 Van | 138 | P205/75Rx15SL | 15x5.5K | 29.3:1 | 46.5 | 48.4 | 34.4° | 34.4° |
| E-150 Super Van | 138 | P235/75Rx15XL | 15x6.0JK | 29.3:1 | 46.6 | 48.4 | 34.4° | 34.4° |
| E-250 Van (3) | 138 | 8.00x16.5 | 16.5x6.0 | 30.7:1 | 48.2 | 50.0 | 33.0° | 33.0° |
| E-250 Super Van (3) | 138 | 8.75x16.5 | 16.5x6.75 | 29.3:1 | 48.3 | 50.0 | 33.0° | 33.0° |
| E-350 Van/Super Van (3) | 138 | 9.50x16.5 | 16.5x6.75 | 30.7:1 | 48.3 | 50.0 | 29.0° | 29.0° |
| * E-350 Commercial Stripped Chassis (3) | 138 | 9.50x16.5 Single Rear Wheels | 16.5x6.75 | 30.7:1 | 47.9 | (5) | 29.0° | 29.0° |
| * E-350 Commercial Stripped Chassis (3) | 138 | 7.50x16.0 Dual Rear Wheels | 16x6.0 | 30.7:1 | 47.8 | (5) | 33.0° | 33.0° |
| * E-350 Commercial Stripped Chassis (3) | 158 | 9.50x16.5 Single Rear Wheels | 16.5x6.75 | 30.7:1 | 53.8 | (5) | 29.0° | 29.0° |
| * E-350 Commercial Stripped Chassis (3) | 158 | 7.50x16.0 Dual Rear Wheels | 16x6.0 | 30.7:1 | 53.8 | (5) | 33.0° | 33.0° |
| POWER STEERING (4) | | | | | | | | |
| E-150 Van | 124 | P205/75Rx15SL | 15x5.5K | 21.0:1 | 42.4 | 44.2 | 34.4° | 34.4° |
| E-150 Van | 138 | P205/75Rx15SL | 15x5.5K | 21.0:1 | 46.5 | 48.4 | 34.4° | 34.4° |
| E-150 Club Wagon | 124 | P225/75Rx15SL | 15x6.0JK | 21.0:1 | 42.4 | 44.2 | 34.4° | 34.4° |
| E-150 Club Wagon | 138 | P225/75Rx15SL | 15x6.0JK | 21.0:1 | 46.5 | 48.4 | 34.4° | 34.4° |
| E-150 Super Van | 138 | P235/75Rx15XL | 15x6.0JK | 21.0:1 | 46.6 | 48.4 | 34.4° | 34.4° |
| E-250 Van | 138 | 8.00x16.5 | 16.5x6.0 | 21.7:1 | 47.8 | 49.2 | 33.0° | 33.0° |
| E-250 Club Wagon/ Super Van | 138 | 8.75x16.5 | 16.5x6.75 | 21.7:1 | 47.9 | 49.7 | 33.0° | 33.0° |
| E-250 Super Wagon | 138 | 9.50Rx16.5 | 16.5x6.75 | 21.7:1 | 47.9 | 49.7 | 33.0° | 33.0° |
| E-350 Van/Super Van/Super Wagon/RV & Commercial Cutaway/PDV/Stripped Chassis | 138 | 9.50x16.5 Single Rear Wheels | 16.5x6.75 | 21.7:1 (23.1:1 Stripped Chassis) | 47.9 | 49.7 (5) | 29.0° | 29.0° |

(1) Average of Left and Right Turns

(2) Koyo Variable Ratio Manual Steering Gear — 24-27:1 Gear Ratio, 16" Steering Wheel Diameter

(3) W/Power Steering Delete Option [AHC]

(4) Ford "XR-50" Power Steering Gear — 17:1 Gear Ratio, 15" Steering Wheel Diameter (16" W/Stripped Chassis)

(5) Not Applicable to Commercial Stripped Chassis

(6) E-350 Commercial Stripped Chassis W/176" Wb. not to be advertised — per DSO direction.

* New or Revised

Chassis — Steering

TURNING DIAMETERS — ECONOLINE

| Truck Series/Model | W.B. | Minimum Tire Size | Wheel Size | Overall Steering Ratio | Turning Dia. (1) Feet | | Inside Wheel Turn Angle | |
|---|------|---------------------------------|------------|------------------------------|-----------------------------|--------------------|-------------------------------|-------|
| | | | | | Curb to Curb | Wall to Wall | Left | Right |
| POWER STEERING (4) — CONT'D | | | | | | | | |
| E-350 Commercial Cutaway (RPO) | 138 | 8.00x16.5 Dual Rear Wheels | 16.5x6.0 | 21.7:1 | 47.8 | 49.7 | 33.0° | 33.0° |
| E-350 RV Cutaway/PDV / Commercial Cutaway (DSO) | 138 | 8.75x16.5 Dual Rear Wheels | 16.5x6.0 | 21.7:1 | 47.8 | 49.7 | 33.0° | 33.0° |
| ★ E-350 Commercial Stripped Chassis | 138 | 7.50x16.0 Dual Rear Wheels | 16x6.0 | 23.1:1 | 47.8 | (5) | 33.0° | 33.0° |
| ★ E-350 Commercial Stripped Chassis | 158 | 9.50x16.5 Single Rear Wheels | 16.5x6.75 | 23.1:1 | 53.8 | (5) | 29.0° | 29.0° |
| E-350 Commercial Cutaway (RPO)/PDV | 158 | 8.00x16.5 Dual Rear Wheels | 16.5x6.0 | 21.7:1 | 53.9 | 55.7 | 33.0° | 33.0° |
| E-350 RV Cutaway/Commercial Cutaway (DSO) | 158 | 8.75x16.5 Dual Rear Wheels | 16.5x6.0 | 21.7:1 | 53.9 | 55.7 | 33.0° | 33.0° |
| E-350 Commercial Stripped Chassis | 158 | 7.50x16.0 Dual Rear Wheels | 16x6.0 | 23.1:1 | 53.8 | (5) | 33.0° | 33.0° |
| E-350 RV Cutaway/Commercial Cutaway (DSO) | 176 | 8.75x16.5 Dual Rear Wheels | 16.5x6.0 | 23.1:1 | 59.7 | 61.6 | 33.0° | 33.0° |

(1) Average of Left and Right Turns

(2) Koyo Variable Ratio Manual Steering Gear — 24-27:1 Gear Ratio, 16" Steering Wheel Diameter

(3) W/Power Steering Delete Option [AHC]

(4) Ford "XR-50" Power Steering Gear — 17:1 Gear Ratio, 15" Steering Wheel Diameter (16" W/Stripped Chassis)

(5) Not Applicable to Commercial Stripped Chassis

(6) E-350 Commercial Stripped Chassis W/176" Wb. not to be advertised — per DSO direction.

★New or Revised

Chassis — Steering

TURNING DIAMETERS — BRONCO, BRONCO II, COURIER, RANGER, F-SERIES REGULAR CAB

| Series | W.B. mm (in.) | Minimum Tire Size | Manual Steering | | | | Power Steering | | | |
|--------------------------------------|---------------------|----------------------|-----------------|------------------|---------------------------|--------------------|----------------|------------------|---------------------------|--------------------|
| | | | Gear Ratio | Overall Ratio | Turning Dia.-m(ft.)(1) | | Gear Ratio | Overall Ratio | Turning Dia.-m(ft.)(1) | |
| | | | | | Curb to Curb | Wall to Wall | | | Curb to Curb | Wall to Wall |
| ☆Bronco II | 2388 (94.0) | P195/75R 15SL | — | — | — | — | 17:1 | 19.8:1 | 9.86 (32.35) | ?? (34.42) |
| ☆Ranger 4x2 Pickup (2)(3) | 2740 (107.9) | P185/75R 14SL | 23.75:1 | 23.9:1 | 11.17 (36.65) | 11.83 (38.81) | 17:1 | 19.4:1 | 11.17 (36.65) | 11.83 (38.81) |
| | 2892 (113.9) | P185/75R 14SL | 23.75:1 | 23.9:1 | 11.71 (38.42) | 12.37 (40.59) | 17:1 | 19.4:1 | 11.71 (38.42) | 12.37 (40.59) |
| ☆Ranger 4x2 Chassis Cab (2)(3) | 2892 (113.9) | P195/75R 15SL | 23.75:1 | 23.9:1 | 11.73 (38.49) | 12.37 (40.59) | 17:1 | 19.4:1 | 11.73 (38.49) | 12.37 (40.59) |
| ☆Ranger 4x4 (2)(4) | 2740 (107.9) | P195/75R 15SL | 20-24:1 | 24.8-29.8:1 | 11.10 (36.42) | 11.74 (38.52) | 17:1 | 19.8:1 | 11.10 (36.42) | 11.74 (38.52) |
| | 2892 (113.9) | P195/75R 15SL | 20-24:1 | 24.8-29.8:1 | 11.64 (38.19) | 12.28 (40.24) | 17:1 | 19.8:1 | 11.64 (38.19) | 12.28 (40.29) |

BRONCO, F-SERIES REGULAR CAB (2)(5)

| | | | | | | | | | | |
|----------------------------|-----------------|---------------|---------|--------|------------------|------------------|------|--------|------------------|------------------|
| Bronco(2) | 2660 (104.7) | P215/75R 15SL | — | — | — | — | 17:1 | 17.6:1 | 11.13 (36.51) | 11.74 (38.51) |
| ☆F-150 4x2 | 2967 (116.8) | P195/75R 15SL | 24-27:1 | 28.3:1 | 12.00 (39.36) | 12.63 (41.43) | 17:1 | 17.7:1 | 11.95 (39.20) | 12.58 (41.26) |
| | 3378 (133.0) | P195/75R 15SL | 24-27:1 | 28.3:1 | 13.43 (44.05) | 14.05 (46.08) | 17:1 | 17.7:1 | 13.38 (43.89) | 14.01 (45.95) |
| F-150 4x4 | 2967 (116.8) | P235/75R 15XL | — | — | — | — | 17:1 | 17.6:1 | 12.24 (40.15) | 12.82 (42.05) |
| | 3378 (133.0) | P235/75R 15XL | — | — | — | — | 17:1 | 17.6:1 | 13.70 (44.94) | 14.28 (46.84) |
| F-250 4x2 (U/8500 lbs.) | 3378 (133.0) | LT215/85R 16 | 24-27:1 | 29.0:1 | 13.79 (45.23) | 14.38 (47.17) | 17:1 | 19.7:1 | 13.77 (45.17) | 14.36 (47.10) |
| F-250 4x4 (U/8500 lbs.) | 3378 (133.0) | LT215/85R 16 | 24-27:1 | — | — | — | 17:1 | 19.7:1 | 14.11 (46.29) | 14.67 (48.12) |
| F-250 HD 4x2 (6) | 3378 (133.0) | LT235/85R 16 | 24-27:1 | 29.0:1 | 13.80 (45.26) | 14.38 (47.17) | 17:1 | 19.5:1 | 13.78 (45.20) | 14.36 (47.10) |
| F-250 HD 4x4 | 3378 (133.0) | LT235/85R 16 | — | — | — | — | 17:1 | 21.9:1 | 14.12 (46.33) | 14.67 (48.12) |

Chassis — Steering

TURNING DIAMETERS — BRONCO, F-SERIES REGULAR CAB (2)(5) — CONT'D

| Series | W.B. mm (in.) | Minimum Tire Size | Manual Steering | | | | Power Steering | | | |
|--|---------------------|------------------------------------|-----------------|------------------|---------------------------|--------------------|----------------|------------------|---------------------------|--------------------|
| | | | Gear Ratio | Overall Ratio | Turning Dia.-m(ft.)(1) | | Gear Ratio | Overall Ratio | Turning Dia.-m(ft.)(1) | |
| | | | | | Curb to Curb | Wall to Wall | | | Curb to Curb | Wall to Wall |
| F-250 HD — 350 4x2 Chassis Cab(6) | 3475 (136.8) | LT235/85R 16 Single Rear Wheels | 24-27:1 | 29.0:1 | 14.15 (46.41) | 14.72 (48.28) | 17:1 | 19.5:1 | 14.13 (46.35) | 14.70 (48.22) |
| | 4085 (160.8) | LT235/85R 16 Single Rear Wheels | 24-27:1 | 29.0:1 | 16.34 (53.60) | 16.90 (55.43) | 17:1 | 19.5:1 | 16.31 (53.50) | 16.88 (55.37) |
| F-350 4x2 Styleside | 3378 (133.0) | LT235/85R 16 Single Rear Wheels | — | — | — | — | 17:1 | 19.5:1 | 13.78 (45.20) | 14.36 (47.10) |
| | 3378 (133.0) | LT215/85R 16 Dual Rear Wheels | — | — | — | — | 17:1 | 19.5:1 | 13.77 (45.17) | 14.36 (47.10) |
| F-350 4x2 Chassis Cab(6) | 3475 (136.8) | LT215/85R 16 Dual Rear Wheels | 24-27:1 | 29.0:1 | 14.14 (46.38) | 14.72 (48.28) | 17:1 | 19.5:1 | 14.12 (46.31) | 14.70 (48.22) |
| | 4085 (160.8) | LT215/85R 16 Dual Rear Wheels | 24-27:1 | 29.0:1 | 16.33 (53.56) | 16.90 (55.43) | 17:1 | 19.5:1 | 16.30 (53.46) | 16.88 (55.37) |
| F-350 4x4 | 3378 (133.0) | LT235/85R 16 | — | — | — | — | 17:1 | 21.9:1 | 15.36 (50.38) | 15.86 (52.02) |

(1) Average of Left and Right Turns.

(2) Ford "XR-50" Power Steering Gear, 15" Steering Wheel Diameter.

(3) Koyo Manual Steering Gear, 15" Steering Wheel Diameter.

(4) Koyo Variable Ratio Manual Steering Gear, 15" Steering Wheel Diameter.

(5) Koyo Variable Ratio Manual Steering Gear, 16" Steering Wheel Diameter.

☆(6) Manual Steering Available W/4.9L I-6 [C] and Power Steering Delete Option [AHC] Only.

☆ — New or Revised

Chassis — Steering

TURNING DIAMETERS — F-SERIES SUPER CAB, CREW CAB SUPERCAB

| Series | W.B. mm (in.) | Minimum Tire Size | Manual Steering | | | | Power Steering | | | |
|----------------------|---------------------|----------------------|-----------------|------------------|---------------------------|--------------------|----------------|------------------|---------------------------|--------------------|
| | | | Gear Ratio | Overall Ratio | Turning Dia.-m(ft.)(1) | | Gear Ratio | Overall Ratio | Turning Dia.-m(ft.)(1) | |
| | | | | | Curb to Curb | Wall to Wall | | | Curb to Curb | Wall to Wall |
| F-150 4x2 | 3526 (138.8) | P235/75R 15XL | — | — | — | — | 17:1 | 17.7:1 | 13.93 (45.69) | 14.52 (47.63) |
| | 3937 (155.0) | P235/75R 15XL | — | — | — | — | 17:1 | 17.7:1 | 15.36 (50.38) | 15.95 (52.32) |
| F-150 4x4 | 3937 (155.0) | P235/75R 15XL | — | — | — | — | 17:1 | 17.6:1 | 15.69 (51.46) | 16.27 (53.37) |
| ☆F-250 HD 4x2 (4) | 3937 (155.0) | LT235/85R 16 | 24-27:1 | 29.0:1 | 15.81 (51.87) | 16.37 (53.71) | 17:1 | 19.5:1 | 15.79 (51.79) | 16.35 (53.63) |
| ☆F-250 HD 4x4 | 3937 (155.0) | LT235/85R 16 | — | — | — | — | 17:1 | 21.3:1 | 17.61 (57.78) | 18.11 (59.42) |

CREW CAB

| | | | | | | | | | | |
|------------|-----------------|--------------|---------|--------|------------------|------------------|------|--------|------------------|------------------|
| ☆F-350 4x2 | 4278 (168.4) | LT235/85R 16 | 24-27:1 | 29.0:1 | 17.06 (55.98) | 17.62 (57.83) | 17:1 | 19.0:1 | 17.05 (55.95) | 17.62 (57.79) |
| F-350 4x4 | 4278 (168.4) | LT235/85R 16 | — | — | — | — | 17:1 | 21.3:1 | 18.97 (62.25) | 19.47 (63.87) |

- (1) Koyo Variable Ratio Manual Steering Gear — 24-27:1 Gear Ratio, 16" Steering Wheel Diameter.
- (2) Ford "XR50" Power Steering Gear — 17:1 Gear Ratio, 15" Steering Wheel Diameter.
- (3) Average of Left and Right Turns.
- (4) Manual Steering Available w/ 4.9L I-6 [C] and Power Steering Delete Option [AHC] Only.

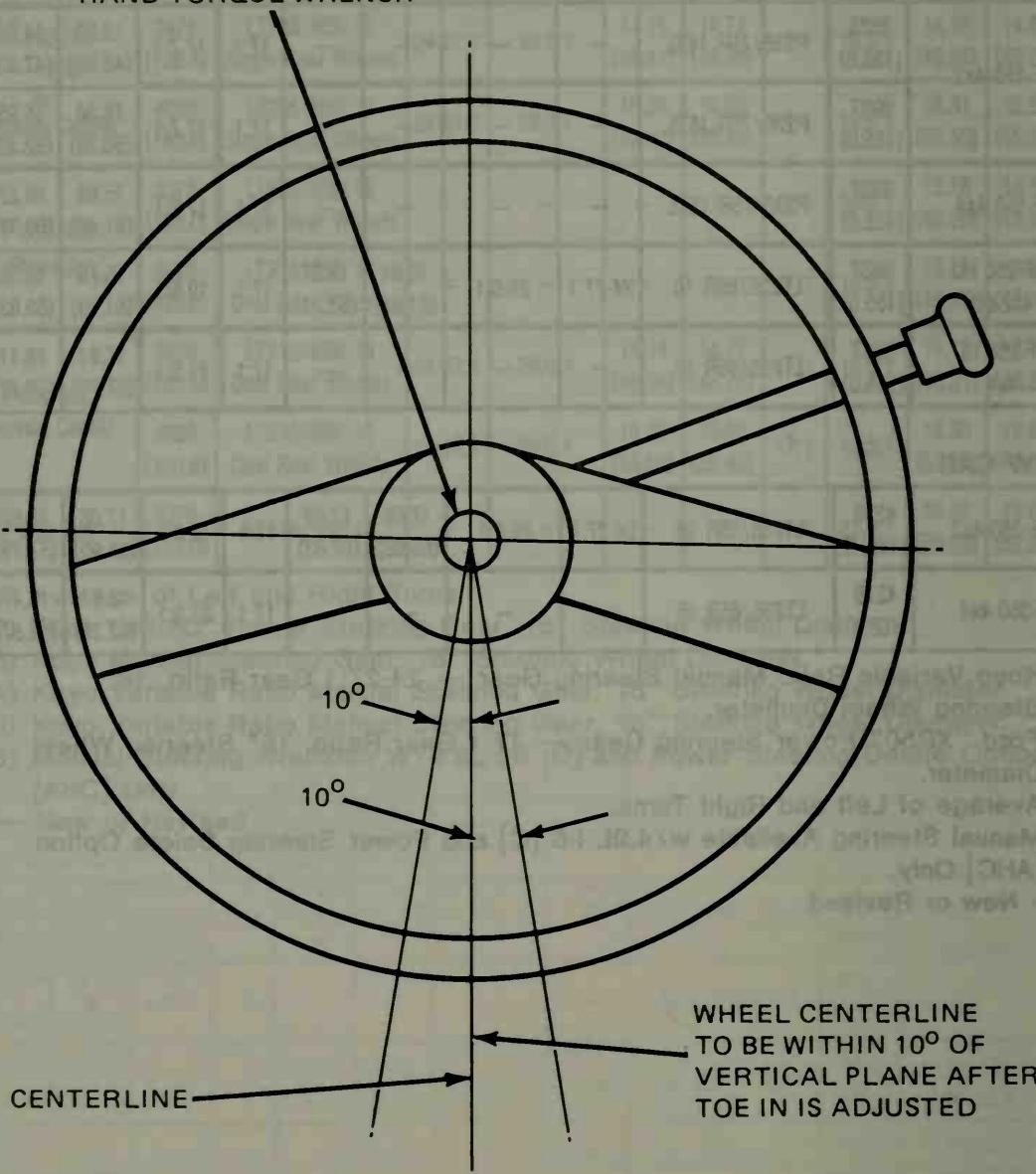
☆ — New or Revised

Chassis — Steering

STEERING WHEEL CLEAR VISION ADJUSTMENT

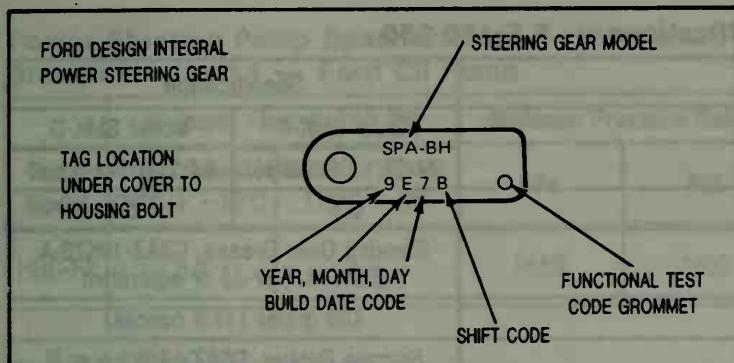
E-150 — E-350, F-150 — F-350, and Bronco

STEERING WHEEL NUT SHALL
BE CHECKED FOR MINIMUM
SPECIFIED TORQUE WITH
HAND TORQUE WRENCH



Chassis — Steering

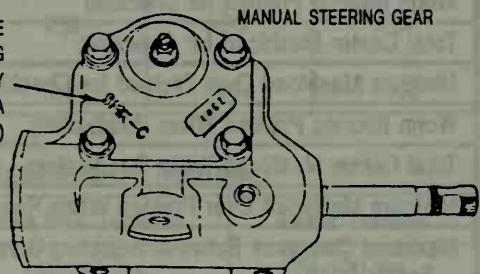
STEERING GEAR IDENTIFICATION — ALL VEHICLES



MANUFACTURING DATE CODE
TO BE STAMPED ON HOUSING
IN THIS AREA

LAST DIGIT OF
YEAR (4 FOR 1984) 4 9 0 7
NUMBER (C1-9 FOR JAN.
THRU SEPT.) OR LETTER
(X, Y, Z FOR OCT.,
NOV., DEC.) FOR MONTH
TWO NUMBERS FOR
DAY OF MONTH

MODEL NUMBER TO BE
SHOWN ON HOUSING
ASSEMBLY
IN THIS AREA
(SMK-C OR SMK-D)



G2931-1D

SERVICE SPECIFICATIONS

Manual Steering Gear Specifications — Ranger

| Description | Specification | |
|---|-----------------------------------|--------------------|
| Gear Ratio | Model SMK-A | Model SMK-B |
| | 24:1 (Constant) | 20-24:1 (Variable) |
| Number of Turns (Lock to Lock) | 6.1 | 5.8 |
| Lubricant Type | C3AZ-19578-A (or equivalent) | |
| Lubricant Capacity | 290 grams (10.2 ounces) | |
| Liquid Gasket Type | D6AZ-19562-A or B (or equivalent) | |
| Worm Bearing Preload for Checking | 22-68 N-Cm (2-6 in-lbs) | |
| Total Center Meshload for Checking | 68-124 N-Cm (6-11 in-lbs) | |
| Minimum Meshload Over Preload for Checking | 23 N-Cm (2 in-lbs) | |
| Worm Bearing Preload When Readjusting | 56-68 N-Cm (5-6 in-lbs) | |
| Total Center Meshload When Readjusting | 102-124 N-Cm (9-11 in-lbs) | |
| Minimum Meshload Over Preload When Readjusting | 45 N-Cm (4 in-lbs) | |
| Maximum Clearance Between Adjusting Screw Head and Sector Shaft | 0.1mm (0.004 inch) | |

Chassis — Steering

SERVICE SPECIFICATIONS — CONT'D

Manual Steering Gear Specifications — E,F-150-350

| Description | Specification | |
|---|---|--------------------|
| Gear Ratio | Model SMK-C | Model SMK-D |
| | 24-27:1 (Variable) | 24-27:1 (Variable) |
| Number of Turns (Lock to Lock) | 6.1 | 5.8 |
| Lubricant Type | Steering Gear Grease, C3AZ-19578-A (ESW-M1C87-A) or equivalent | |
| Lubricant Capacity | 420 grams (14.8 ounces) | |
| Liquid Gasket Type | Silicone Rubber, D6AZ-19562-A or B (ESB-M4G92-A and ESE-M4G195-A) or equivalent | |
| Worm Bearing Preload for Checking | 56-102 N-Cm (5-9 in-lbs) | |
| Total Center Meshload for Checking | 102-158 N-Cm (9-14 in-lbs) | |
| Minimum Meshload Over Preload for Checking | 23 N-Cm (2 in-lbs) | |
| Worm Bearing Preload When Readjusting | 79-102 N-Cm (7-9 in-lbs) | |
| Total Center Meshload When Readjusting | 136-158 N-Cm (12-14 in-lbs) | |
| Minimum Meshload Over Preload When Readjusting | 45 N-Cm (4 in-lbs) | |
| Maximum Clearance Between Adjusting Screw Head and Sector Shaft | 0.1mm (0.004 inch) | |

Ford Integral Power Steering Gear Specifications — All Vehicles

| Description | |
|---|--------------------------------|
| Type | Recirc. Ball Torsion Bar |
| Ratio | 17:1 |
| Turns of Steering Wheel (Lock to Lock — Linkage Disconnected) | 4 |
| Fluid Capacity (Included in Pump Reservoir Fill) | .75L (16 Pint Approx.) |
| Fluid Specification | ESW-M2C33-F (2) |
| Worm Bearing Preload | 0.45-1.0 N-m (4-9 in-lbs) (1) |
| Worm to Piston Preload | 0.11-0.34 N-m (1-3 in-lbs) (1) |

(1) Not adjustable in field. Specification given for inspection purposes only.

(2) C1AZ-19582-A, C, or D or equivalent.

Power Steering Pump Specifications — Flow and Pressure — Ranger

| | Minimum Flow @ 5100 kPa (740 psi)(1) | | Minimum Relief Pressure | | Maximum Relief Pressure | | Maximum Free Flow @ 1500 RPM | |
|--------|--------------------------------------|----------------------------|-----------------------------|------|-------------------------|------|------------------------------|---------------|
| | Pump Model | Liters/Minute 76°C (170°F) | Gallons/Minute 76°C (170°F) | kPa | PSI | kPa | PSI | Liters/Minute |
| HBC-FR | 3.4 | .9 | 6550 | 950 | 7790 | 1130 | 9.8 | 2.6 |
| HBC-HC | 2.3 | .6 | 6895 | 1000 | 7583 | 1100 | 9.8 | 2.6 |

(1) Note: Flow depends on pump model, engine RPM and pulley drive ratio. Engine idle RPM must be set to specification when checking pump minimum flow capacity.

Chassis — Steering

SERVICE SPECIFICATIONS — CONT'D

Power Steering Pump Specifications — Flow and Pressure E, F-150-350, Bronco — Chart I — Ford CII Pump

| | Minimum Flow @ 740 PSI | | Minimum Pressure Relief | | Maximum Pressure Relief | |
|------------|-------------------------------|-------------------------------|-------------------------|------|-------------------------|------|
| Pump Model | Liters/Minute 76°C + -15°C | Gallons/Minute 170°F + 5°F | kPa | PSI | kPa | PSI |
| HBC-FT | 5.3 | 1.4 | 9653 | 1400 | 10542 | 1500 |

Chart II — Saginaw Pump

| | Minimum Flow @ 620 PSI | | Minimum Relief Pressure | | Maximum Relief Pressure | |
|------------|------------------------------|-------------------------------|-------------------------|------|-------------------------|------|
| Pump Model | Liters/Minute 76°C + 15°F | Gallons/Minute 170°F + 5°F | kPa | PSI | kPa | PSI |
| HBA-GZ | 6.8 | 1.8 | 9300 | 1350 | 9997 | 1450 |

Power Steering Drive — Belt Tension Specifications — Ranger

| Alternator Drive Belts | | Audit Tension | New Belt Tension | Reset Tension |
|------------------------|-------------|-------------------------------|--------------------------------|-------------------------------|
| 5K | Poly-V Belt | 75-140 lbs. (34.1-63.5 kg) | 110-140 lbs. (49.9-63.5 kg) | 75-130 lbs. (34.0-58.9 kg) |

Power Steering — Drive Belt Tension Specifications — E, F-150-350, Bronco

| Belt Width | Minimum Tension (for use at maintenance interval only) (Hot Engine) | | Installation Tension | | | |
|-----------------|--|-----|----------------------|-----|----------|-----|
| | Lbs | N | Used Belt (1) | | New Belt | |
| | | | Lbs | N | Lbs | N |
| 1/4" | 30 | 133 | 60 | 267 | 80 | 356 |
| 3/8" and 15/32" | 50 | 222 | 110 | 489 | 140 | 623 |
| 1/2" | 50 | 222 | 110 | 489 | 140 | 623 |

(1) Any belt operated for 10 minutes or more is considered a used belt.

Chassis — Steering

SERVICE SPECIFICATIONS — CONT'D

Meshload Checking and Setting — All Vehicles

| Vehicles with 0-8046km (0-5000 Miles) | Vehicles with More Than 8046 km (5000 Miles) or Where Sector Shaft Has Been Replaced |
|---|---|
| <p>CHECKING: Reset if total meshload over mechanical center is less than 1.9 N·m (15 in-lbs) or greater than 2.9 N·m (25 in-lbs) (1)</p> <p>RESET: Set torque measured rocking across center to a value of 1.6-2.0 N·m (14-18 in-lbs) greater than that measured 45° from the right stop.</p> | <p>CHECKING: Reset if meshload measured while rocking input shaft over center is less than 0.8 N·m (7 in-lbs) (2) greater than the torque 45° from the right stop.</p> <p>RESET: Set torque measured rocking across center to a value 1.13-1.6 N·m (10-14 in-lbs) greater than that measured 45° from the right stop.</p> |

(1) All except Ranger. Ranger specification is 1.5-3.2 N·m (12-29 in-lbs)

(2) All except Ranger. Ranger specification is 1.13 N·m (10 in-lbs)

Chassis — Steering

TORQUE SPECIFICATIONS

General Service

F-150 — F-350, E-150 — E-350, and Bronco

| Description | Model | Torque (ft-lb) | Torque N·m |
|---|--|----------------|----------------|
| Steering Gear to Frame — Power and Manual | All | 70 | 68-88 |
| Pitman Arm to Steering Gear | All | 170-230 | 230-310 |
| Drag Link/Tie Rod End Studs | All | 52-74 | 70-100 |
| Linkage Adjusting Sleeve Clamp | All | 29-41 | 40-57 |
| Power Steering Support Bracket to Engine or A/C Bracket | E-150 — E-350 (8 Cyl.) | 30-45 | 41-61 |
| Power Steering Adjusting Bracket to Support Bracket | E-150 — E-350 (8 Cyl.) | 30-45 | 41-61 |
| Power Steering Pump to Adjusting Bracket | E-150 — E-350 (All) | 30-45 | 41-61 |
| Power Steering Bracket to Engine | E-150 — E-350 (6 Cyl.) | 40-60 | 55-81 |
| Power Steering Adjusting Bracket to Brace | E-150 — E-350 (6 Cyl.) | 30-45 | 41-61 |
| Power Steering Cooler to Frame Bracket | E-150 — E-350 (All) | 11-16 | 15-21 |
| Power Steering Pressure Hose (Pump) (Gear) | E-150 — E-350 (All) | 35-24 16-25 | 34-46 22-33 |
| Flange and Insulator Assembly to Steering Gear | All | 28-35 | 38-47 |
| Flange and Insulator to Coupling Shaft | F-150 — F-350, Bronco | 14-21 | 18-28 |
| Coupling Shaft to Steering Shaft | F-150 — F-350, Bronco | 45-59 | 61-80 |
| Flange and Insulator to Steering Column | E-150 — E-350 | 14-21 | 18-28 |
| Steering Wheel to Steering Shaft | All | 30-42 | 41-56 |
| Support Bracket to Steering Column | All | 13-20 | 18-27 |
| Steering Column Support Bracket to Pedal Bracket | All | 13-27 8-20 | 18-37 11-27 |
| Steering Column Floor Opening Cover Plate to Floor | F-150 — F-350 E-150 — E-350 | 9-13 8-20 | 12-18 11-27 |
| Steering Column Floor Opening Cover Plate Clamp | F-150 — F-350, Bronco E-150 — 350, Bronco | 8-18 | 11-24 |
| Shroud | All | 10-15 | 1.1-1.7 |
| Ignition Switch to Steering Column | All | 40-60 | 4.5-7.3 |

Chassis — Steering

TORQUE SPECIFICATIONS (CONT'D)

General Service — Ranger

| Description | Torque | |
|--|---------|---------|
| | N·m | Ft-Lbs |
| MANUAL AND POWER STEERING GEARS | | |
| Flex Coupling to Steering Gear Input Shaft | 34-47 | 25-35 |
| Pitman Arm to Gear Nut | 230-312 | 170-230 |
| Steering Gear to Frame Belt | 73-88 | 54-66 |
| POWER STEERING PUMPS | | |
| Alternator Adjusting Bolt | 33-54 | 22-40 |
| Alternator Pivot Bolt | 55-67 | 40-50 |
| Power Steering Pump to Bracket Bolt | 41-61 | 30-45 |
| Power Steering Pump Bracket to Engine Block Bolt | 41-61 | 30-45 |
| STEERING COLUMNS | | |
| Intermediate Shaft to Steering Shaft Nut | 54-68 | 40-50 |
| Steering Column to Bracket Bolt | 20-30 | 15-22 |
| Steering Column Floor Cover Plate Bolt | 12-17 | 9-12 |
| Steering Wheel to Steering Shaft Nut | 41-56 | 30-42 |
| STEERING LINKAGE | | |
| Drag Link to Connecting Rod Ball Stud Nut | 68-101 | 50-75 |
| Drag Link to Pitman Arm Ball Stud Nut | 68-101 | 50-75 |
| Pitman Arm to Steering Gear Nut | 230-310 | 170-230 |
| Tie Rod Adjusting Sleeve Nuts | 40-57 | 29-41 |
| Tie Rod to Spindle Ball Stud Nut | 68-101 | 50-75 |

Chassis — Steering

TORQUE SPECIFICATIONS (CONT'D)

Manual Steering Gear — All Vehicles Except Bronco

| Application | Ranger | |
|---|--------------|---------|
| | Ft-Lb | N·m |
| Flex Coupling to Steering Gear Input Shaft Bolt | 25-35 | 34-47 |
| Sector Shaft Cover Bolt | 32-40 | 43-54 |
| Ball Return Guide Clamp Screw | 26-39(in-lb) | 3-4.4 |
| Preload Adjuster Locknut | 166-187 | 225-253 |
| Meshload Adjusting Screw Locknut | 14-25 | 19-34 |
| Sector Shaft to Pitman Arm (1) | 170-230 | 230-312 |
| Steering Gear to Frame | 54-66 | 73-88 |

(1) Two to five full threads of sector shaft must remain exposed after nut is torqued to specification.

Manual Steering Gear — F-150-350, E-150-350

| Description | Torque | |
|--|---------|---------|
| | N·m | Ft-Lbs |
| Sector Cover Bolts | 43-54 | 32-40 |
| Meshload Adjusting Screw Locknut | 19-34 | 14-25 |
| Preload Adjuster Lock Nut | 225-253 | 166-187 |
| Steering Gear to Frame Bolts — F-150 — F-350 | 74-89 | 54-66 |
| Steering Gear to Frame Bolts — E-150 — E-350 | 95 | 70 |
| Steering Gear to Intermediate Shaft Bolt — F-150 — F-350 | 34-46 | 25-34 |
| Steering Gear to Flex Coupling Bolt — E-150 — E-350 | 28-47 | 20-35 |
| Flex Coupling to Steering Column Nuts — F-150 — E-350 | 19-28 | 14-21 |
| Pitman Arm to Steering Gear Sector Shaft Nut | 230-312 | 170-230 |
| | N-Cm | In-Lbs |
| Ball Return Guide Tube Clamp Screws | 300-440 | 26-39 |

CG4186-2A

Chassis — Steering

TORQUE SPECIFICATIONS — CONT'D

Ford Integral Power Steering Gear — All Vehicles

| Description | Torque Limits | |
|------------------------------------|---------------|---------|
| | Ft-Lb | N·m |
| Sector Shaft Cover Bolts | 55-70 | 75-94 |
| Meshload Adjusting Screw Locknut | 35-45 | 48-61 |
| Valve Housing to Gear Housing Bolt | 35-45 | 48-62 |
| Rack Retaining Nut | 55-90 (1) | 75-122 |
| Piston End Cap | 70-110 | 95-149 |
| Pressure Hose to Gear | 16-25 | 22-33 |
| Return Hose to Gear | 25-34 | 34-46 |
| Hose Clamps | 1-2 | 1.4-2.7 |
| Pitman Arm to Sector Shaft Nut | 170-228 | 230-310 |
| | In-Lb | N·m |
| Ball Return Guide Clamp Screw | 42-70 | 4.8-7.9 |
| Set Screw Race Nut | 15-25 | 1.7-2.8 |

(1) Specified Torque — Because the length of the tool required to torque the nut will affect the observed torque reading on the torque wrench, the torque reading should be computed using the length of the torque wrench and the nominal specified torque as follows:

$$\text{Torque Reading} = \frac{\text{Length of Torque Wrench} \times 72 \text{ ft-lb}}{\text{Length of Torque Wrench} + 5.5 \text{ Inches}}$$

(Using Tool T66P-3553-B)

Example: With 13 inch torque wrench

$$\frac{13 \text{ In.} \times 72 \text{ ft-lb}}{13 \text{ In.} + 5.5 \text{ In.}} = \frac{13 \text{ In.} \times 72 \text{ ft-lb}}{18.5 \text{ In.}} = 0.703 \times 72 \text{ ft-lb} = 50 \text{ ft-lb}$$

Chassis — Steering

TORQUE SPECIFICATIONS — CONT'D

Power Steering Pump — CII — Ranger

| Description | Torque | |
|--------------------------------------|--------|-------|
| | N·m | Ft-Lb |
| 2.0L & 2.3L I-4 Gas Engines | | |
| Alternator Adjuster Bolt | 33-54 | 22-40 |
| Alternator Pivot Bolt | 55-67 | 40-50 |
| Pump to Bracket | 41-61 | 30-45 |
| Bracket to Engine Block | 41-61 | 30-45 |
| 2.8L V-6 Gas Engine | | |
| Slider Bolts | 47-64 | 35-47 |
| Front and Rear Support Bracket Bolts | 47-64 | 35-47 |
| Pump to Bracket | 47-64 | 35-47 |
| Pump | | |
| Outlet Fitting Into Valve Cover | 34-46 | 25-34 |
| Quick Connect Fitting | 14-27 | 10-20 |

Power Steering Pump — CII — E-, F-150-350, Bronco

| Description | 4.9L (300 CID) I-6 | | 5.0L(302 CID) V-8 | | 5.8L(351 CID) V-8 6.6L(400 CID) V-8 | |
|---|--------------------|----------------|-------------------|----------------|--|-------|
| | N·m | Ft-Lb | N·m | Ft-Lb | N·m | Ft-Lb |
| Pivot Bolt | 41-61 | 30-45 | 61-88 | 45-65 | — | — |
| Pump to Adjustment Bracket | 41-61 | 30-45 | 41-61 | 30-45 | 41-61 | 30-45 |
| Adjustment Bracket to Support Bracket | 41-61 | 30-45 | 41-61 | 30-45 | 41-61 | 30-45 |
| Support Bracket to Engine | — | — | — | — | 61-88 | 45-65 |
| Support Bracket to Water Pump Housing | 16-23 | 12-17 | 41-61 | 30-45 | 41-61 | 30-45 |
| Pressure Hose to Rear Fitting | 19-39 | 14-29 | 19-39 | 14-29 | 19-39 | 14-29 |
| Pump Outlet Fitting to Pump Valve Cover | 34-46 | 25-34 | 34-46 | 25-34 | 34-36 | 25-34 |
| Return Hose to Gear Fitting | 23-43 | 17-32 | 23-43 | 17-32 | 23-43 | 17-32 |
| Return Line to Frame | 15-21 | 11-16 | 15-21 | 11-16 | 15-21 | 11-16 |
| Return Hose to Pump (Hose Clamp) | 1.3-2.7 | 12-14 in-lb | 1.3-2.7 | 12.24 in-lb | 1.3-2.7 | 12.24 |

Chassis — Steering

TORQUE SPECIFICATIONS (CONT'D)

| Description | 7.5L (460 CID) Gas Engine | | 6.9L Diesel Engine | | |
|---|------------------------------|----------------|-----------------------|----------------|-------|
| | N·m | Ft-Lb | N·m | Ft-Lb | |
| Pivot Bolt | 41-61 | 30-45 | 41-61 | 30-45 | |
| Pump to Adjustment Bracket | 41-61 | 30-45 | 41-61 | 30-45 | |
| Adjustment Bracket to Support Bracket | Long Bolt | 61-81 | 45-65 | 61-81 | 45-65 |
| | Short Bolt | 41-61 | 30-45 | 41-61 | 30-45 |
| Pressure Hose to Rear Fitting | 19-39 | 14-29 | 19-39 | 14-29 | |
| Pump Outlet Fitting to Pump Valve Cover | 34-46 | 25-34 | 34-46 | 25-34 | |
| Return Hose to Gear Fitting | 23-43 | 17-32 | 23-43 | 17-32 | |
| Return Line to Frame | 15-21 | 11-16 | 15-21 | 11-16 | |
| Return Hose to Pump (Hose Clamp) | 1.3-2.7 | 12-24 in-lb | 1.3-2.7 | 12-24 in-lb | |

Power Steering Pump — Saginaw — E-150-350, Bronco

| Description | Size | Engine | | | | Torque | |
|---|----------------|--------------------------|--------------------------|--------------------------|--------------------------|--------|-------|
| | | 4.9L (300 CID) I-6 | 5.0L (302 CID) V-8 | 5.8L (351 CID) V-8 | 7.5L (460 CID) V-8 | N·m | Ft-Lb |
| Support bracket to engine bolt | 3/8-16 x .75 | | X | X | X | 48-60 | 30-45 |
| | 5/16-18 x 1.25 | X | | | | 30-43 | 22-32 |
| | 7/16-14 x 1.25 | X | | | | 55-81 | 40-60 |
| Adjusting bolt | 7/16-14 x .75 | | X | X | X | 57-77 | 42-57 |
| | 3/8-16 x .75 | X | | | | 40-60 | 30-45 |
| Pump to adjusting bracket bolt | 10mm x 19mm | X | X | X | X | 40-60 | 30-45 |
| Support bracket to adjusting bracket to engine bolt | 7/16-14 x 6.00 | | X | X | X | 57-77 | 42-57 |
| Support bracket to adjusting bracket bolt | 3/8-16 x .75 | X | | | | 40-60 | 30-45 |
| Pump to adjusting bracket nut | M-10 | | X | X | X | 40-60 | 30-45 |
| Pressure line to pump nut | — | X | X | X | X | 20-35 | 15-25 |
| Pressure line to gear nut | — | X | X | X | X | 20-30 | 15-22 |
| Return line to gear nut | — | X | X | X | X | 20-30 | 15-22 |

Chassis — Suspension — Front

Front Suspension Usage

| Vehicle | Axle | Springs | Shock Absorbers |
|--|-----------------------------|---|-----------------|
| Ranger (4x2) F-150 (4x2) | Twin I-Beam IFS, Stamped | Coil Computer-Selected | 1 inch |
| F-250/350 (4x2) E-150 | Twin I-Beam IFS, Forged | Coil Computer-Selected | 1 inch |
| E-250/350 | Twin I-Beam IFS, Forged | Coil Computer-Selected | 1.38 inch |
| Ranger (4x4) Bronco II F-150 (4x4) Bronco | Twin Traction Beam IFS | Coil Computer-Selected | 1 inch (1) |
| F-250 (4x4) F-350 (4x4) Pickup and Chassis Cab | Twin Traction Beam IFS | Leaf, Single Stage Constant Rate | 1 inch |
| F-350 (4x4) Crew Cab | Twin Traction Beam IFS | Tapered Leaf Single Stage Constant Rate | 1 inch |

(1) Standard (1.38 inch optional)

Wheelbase and Tread Width (Inches)

| Vehicle | Wheelbase (Inches) | Tread Width | |
|--------------------------------|-----------------------|-------------|------|
| | | Front | Rear |
| Ranger (4x2) | 107.9 / 113.9 | 55 | 54.6 |
| Ranger (4x4) | 107.9 / 113.9 | 56.5 | 55.1 |
| F-150 (4x2) Regular Cab | 116.8 / 133.0 | 65.1 | 64.4 |
| F-150 (4x2)(4x4) SuperCab | 138.8 / 155.0 | 65.1 | 64.4 |
| F-250 (4x2) | 133 / 136.8 / 160.8 | 65.7 | 64.3 |
| F-250 (4x4) F-350 (4x2) SRW | 133 | 66.7 | 64.3 |
| F-350 (4x2) DRW | 136.8 / 160.8 | 65.7 | 65.1 |
| F-350 (4x4) | 133 | 66.9 | 64.3 |
| Bronco | 104.7 | 65.1 | 64.4 |
| E-150 | 124 / 138 | 69.4 | 67.0 |
| E-250/350 | 138 | 68.4 | 66.0 |

Chassis — Suspension — Front

Spindle Arm Stop Angle — F-Series

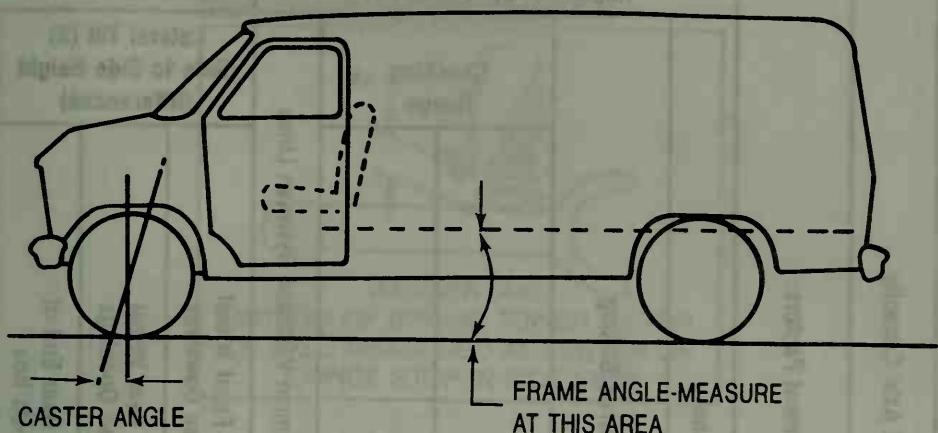
| Vehicle Type | Spindle Arm Stop Angle — Degrees* | |
|--|-----------------------------------|------------|
| | Kingpin | Ball Joint |
| F-150 (4x2) Regular & SuperCab | 36.8 | 36.8 |
| F-250/350 (4x2) Regular Cab, SuperCab and Crew Cab | 35.0 | 35.0 |
| F-150 (4x4) Regular Cab, SuperCab and Bronco | — | 36.0 (1) |
| F-250 (4x4) Regular Cab, SuperCab and Crew Cab | — | 33.4 |
| F-350 (4x4) Regular Cab, F-250 HD (4x4) | — | 30.3 |

*All stops are non-adjustable.

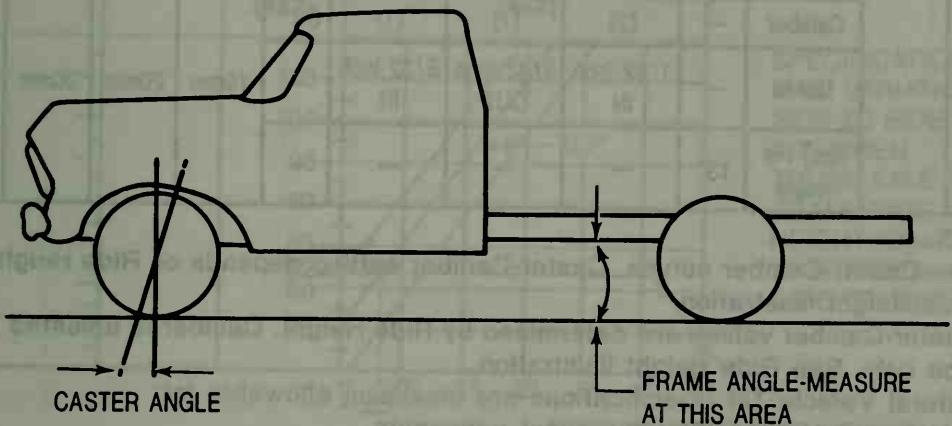
(1) 34.0 with 10x15 size tires.

Chassis — Suspension — Front

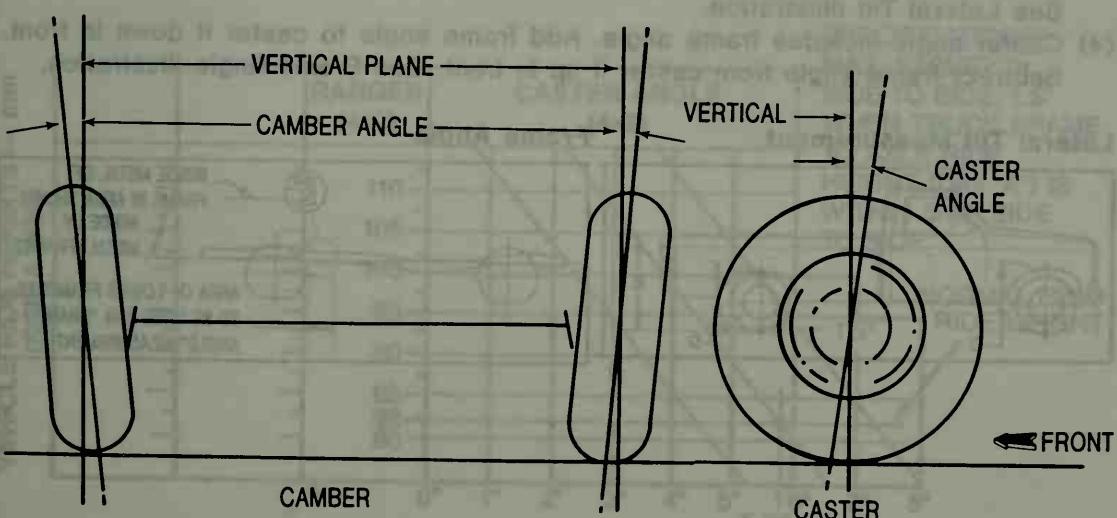
ALIGNMENT DATA — ALL VEHICLES



MODEL E-150 — E-250 — E-350



MODEL F-150 — F-350 TRUCKS



Chassis — Suspension — Front

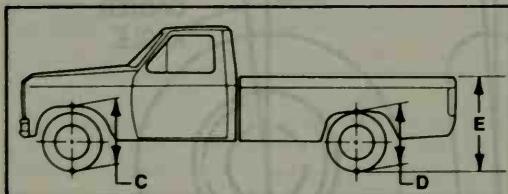
ALIGNMENT SPECIFICATIONS — RANGER (4x2)

| Truck Model | Front Axle Capacity | Alignment Factors | Alignment Specifications | | | | Standard Vehicle Attitude | |
|---------------|---------------------|-------------------|--------------------------|-------------------|------------------|-----------------|---------------------------|--|
| | | | Nominal | Preferred Setting | Checking Range | | | Maximum Variation Between Lines |
| | | | | | Min. | Max. | | Lateral Tilt (3) (Side to Side Height Differences) |
| Ranger 4x2 | 2020 | Caster(4) | — | (2) | (1) | (1) | 1.5° | 15mm |
| | | Camber | — | (2) | (1) | (1) | 0.7° | |
| | | Toe-In | — | 1/32 inch IN | 3/32 inch OUT | 5/32 inch IN | — | |
| | | King Pin Angle | 13° | — | — | — | — | |

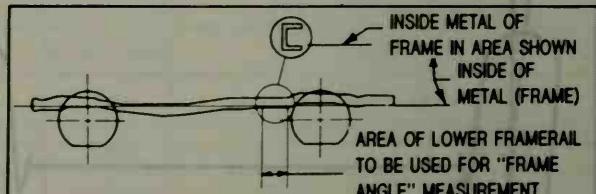
NOTES:

- (1) See Caster-Camber curves. Caster-Camber setting depends on Ride Height. See Ride Height illustration.
- (2) Caster-Camber values are determined by Ride Height. Camber is adjusted in service only. See Ride Height illustration.
- (3) Lateral Vehicle Tilt Specifications are maximum allowable for:
 - Vehicles at Curb Weight without occupants.
 - Vehicle loaded (not exceeding GVW) with equally distributed weight over the cargo and occupant areas.
 See Lateral Tilt illustration.
- (4) Caster angle includes frame angle. Add frame angle to caster if down in front. Subtract frame angle from caster if up in front. See Frame Angle illustration.

Lateral Tilt Measurement

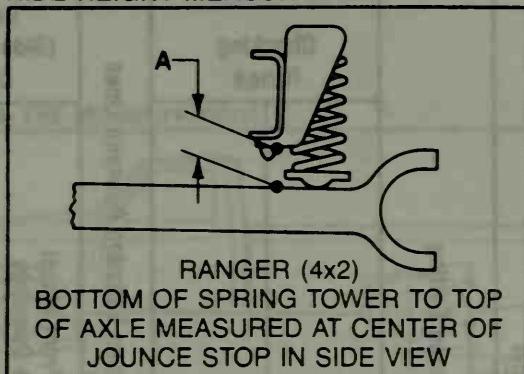


Frame Angle

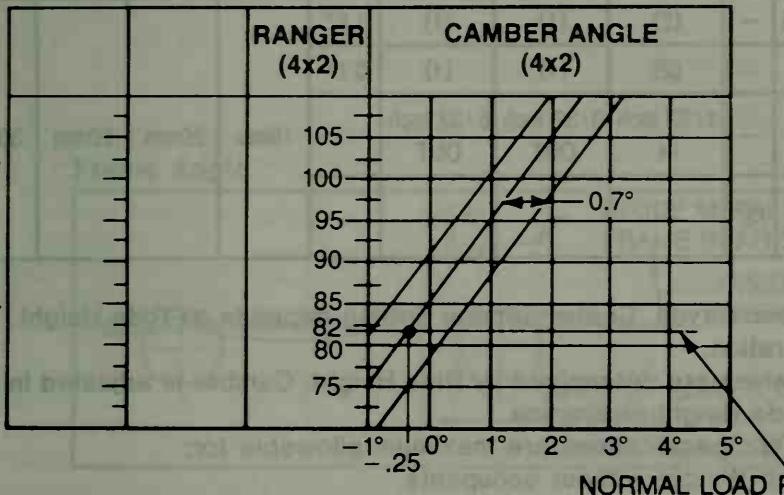


ALIGNMENT SPECIFICATIONS — RANGER (4x2) — CONT'D

RIDE HEIGHT MEASUREMENT

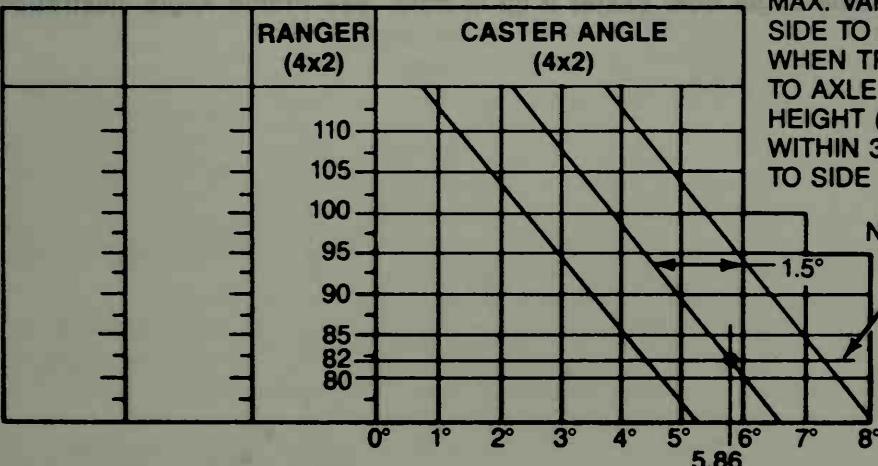


VEHICLE RIDE HEIGHTS — mm
(REF. A DIM)



SPECIFICATIONS:
MAX. VARIATION
SIDE TO SIDE:
0.7° WHEN
TRUCK AXLE TO
FRAME RIDE
HEIGHT (DIM "A")
IS WITHIN 3mm
SIDE TO SIDE

VEHICLE RIDE HEIGHTS — mm
(REF. A DIM)



SPECIFICATIONS:
MAX. VARIATION
SIDE TO SIDE: 1.5°
WHEN TRUCK FRAME
TO AXLE RIDE
HEIGHT (DIM "A") IS
WITHIN 3mm SIDE
TO SIDE

Chassis — Suspension — Front

ALIGNMENT SPECIFICATIONS — RANGER (4x4)

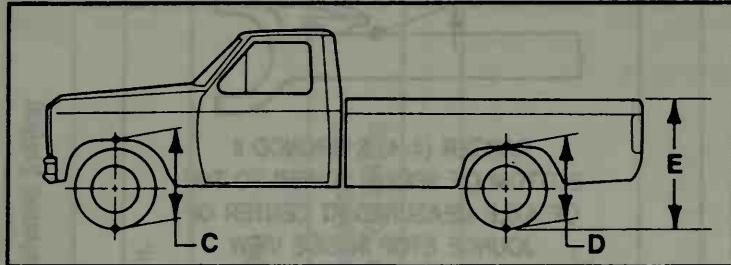
| Truck Model | Front Axle Capacity | Alignment Factors | Alignment Specifications | | | | Maximum Variation Between Lines | Standard Vehicle Attitude | | | |
|--------------------------------|---------------------|-------------------|--------------------------|-------------------|------------------|------------------|---------------------------------|---|----------------------------------|--------------------------------|--|
| | | | Nominal | Preferred Setting | Checking Range | | | Lateral Tilt(3) (Side to Side Height Differences) | Dog- Track | | |
| | | | | | Min. | Max. | | "C" Front Wheel House Openings | "D" Rear Wheel House Openings | "E" Rear End of Pick-Up Box | Centerline of Front Tread to Centerline of Rear Tread |
| Ranger 4x4 and Bronco II | | Caster(4) | — | (2) | (1) | (1) | 1.5° | 15mm | 20mm | 20mm | 30mm |
| | | Camber | — | (2) | (1) | (1) | 0.7° | | | | |
| | | Toe-In | — | 1/32 inch IN | 3/32 inch OUT | 5/32 inch OUT | — | | | | |
| | | King Pin Angle | 13° | — | — | — | — | | | | |

NOTES:

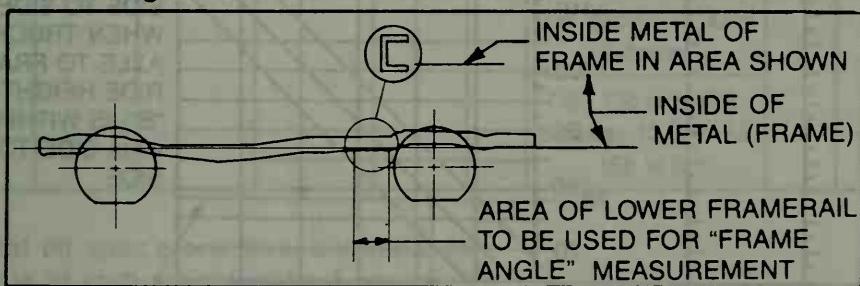
- (1) See Caster-Camber curves. Caster-Camber setting depends on Ride Height. See Ride Height illustration.
- (2) Caster-Camber values are determined by Ride Height. Camber is adjusted in service only. See Ride Height illustration.
- (3) Lateral Vehicle Tilt Specifications are maximum allowable for:
 - Vehicles at Curb Weight without occupants.
 - Vehicle loaded (not exceeding GVW) with equally distributed weight over the cargo and occupant areas.
 See Lateral Tilt illustration.
- (4) Caster angle includes frame angle. Add frame angle to caster if down in front. Subtract frame angle from caster if up in front. See Frame Angle illustration.

ALIGNMENT SPECIFICATIONS — RANGER (4x4) — CONT'D

Lateral Tilt Measurement



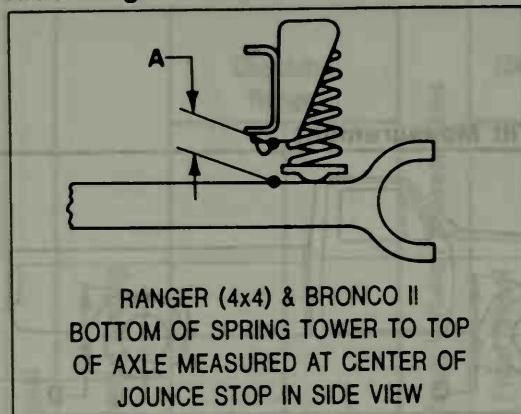
Frame Angle



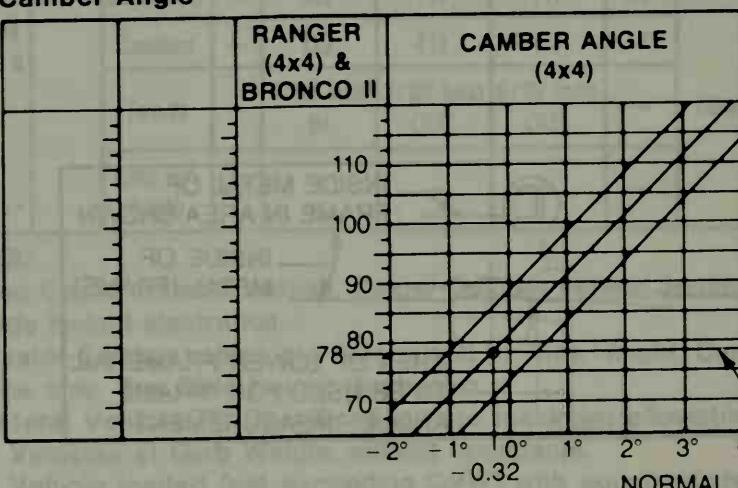
Chassis — Suspension — Front

ALIGNMENT SPECIFICATIONS — RANGER (4x4) — CONT'D

Ride Height Measurement

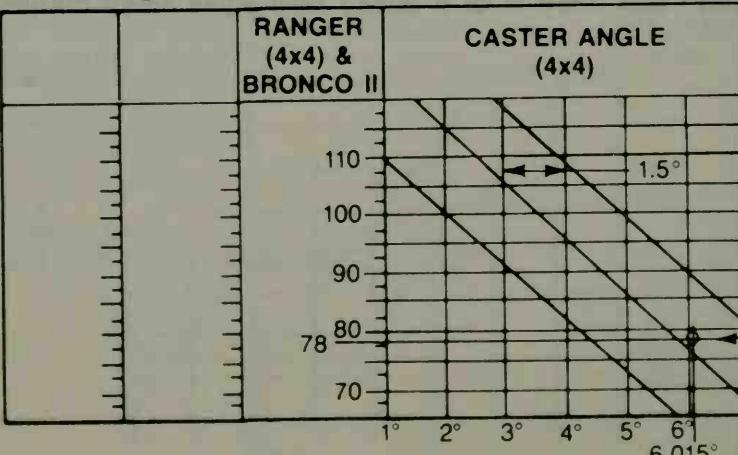


VEHICLE RIDE HEIGHTS — mm
(REF. "B" DIM)



SPECIFICATIONS:
MAX. VARIATION
SIDE TO SIDE: 0.7°
WHEN TRUCK
AXLE TO FRAME
RIDE HEIGHT (DIM
"B") IS WITHIN
4mm SIDE TO
SIDE

VEHICLE RIDE HEIGHTS — mm
(REF. "B" DIM)



SPECIFICATIONS:
MAX. VARIATION
SIDE TO SIDE: 1.5°
WHEN TRUCK FRAME
TO AXLE RIDE HEIGHT
(DIM "B") IS WITHIN
4mm SIDE TO SIDE

Chassis — Suspension — Front

ALIGNMENT SPECIFICATIONS — E-150-350

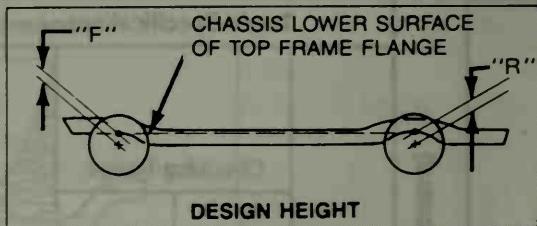
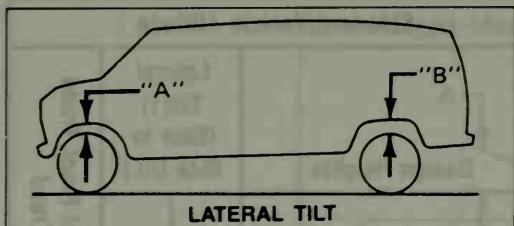
| Model | King Pin Inclination (Nominal) | Toe-In Specifications | | | | Standard Vehicle Attitude | | | | Lateral Tilt(1) (Side to Side Dif.) | | Dog-Track Centerline of Front Tread to Centerline of Rear Tread | | | |
|-------|--------------------------------|-----------------------|----------------|----------|----------------------------------|---------------------------|--|--|--|--|------|--|--|--|--|
| | | Preferred Setting | Checking Range | | Dimension "C" for Toe Setting | Design Heights | | | | | | | | | |
| | | | Min. | Max. | | "F" | "R" | | | | | | | | |
| E-150 | 7-1/2° | 1/32" in | 3/32" out | 5/32" in | 5.00 | 5.18 | 5.33 | | | 1/2" | 1/2" | 1-1/4" | | | |
| E-250 | 8° | 1/32" in | 3/32" out | 5/32" in | 5.00 | 6.68 | 6.75—VAN | | | 1/2" | 1/2" | 1-1/4" | | | |
| | | | | | | | 6.25—BUS | | | | | | | | |
| E-350 | 8° | 1/32" in | 3/32" out | 5/32" in | 5.00 | 6.68 | 7.25—Cutaway | | | 1/2" | 1/2" | 1-1/4" | | | |
| | | | | | | | 7.47—ALL 138 inch W.B. except 10,000—Cutaway | | | | | | | | |
| | | | | | | | 7.97 138 inch W.B. Cutaway 10,000—All 158 W.B. | | | | | | | | |

NOTES:

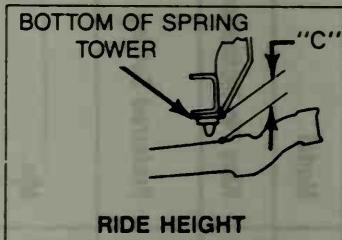
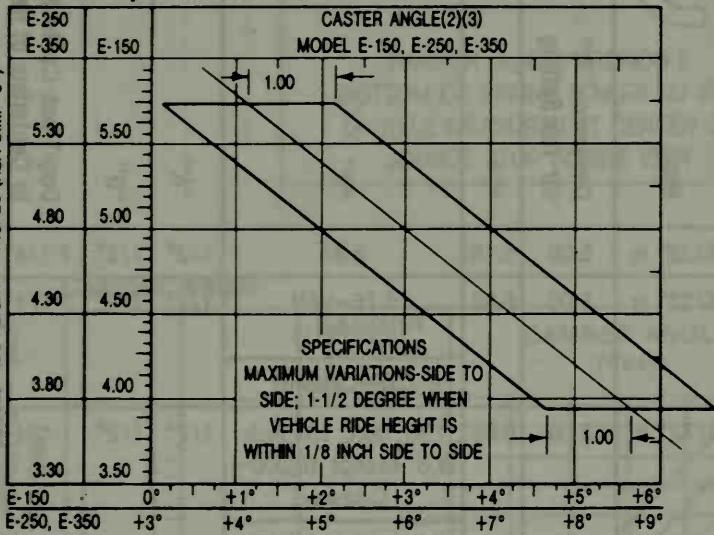
- (1) Lateral tilt spec's are max. allowable for:
 Vehicle at curb weight without occupants.
 Vehicle loaded (not exceeding GVW) with equally distributed weight over the cargo and occupant areas.
- (2) Measured caster angle includes frame angle. Add frame angle to caster if down in front; subtract if up in front.
- (3) Caster and camber depend upon ride height dim. "C" ("C" must be within .125" side to side to use curves).

Chassis — Suspension — Front

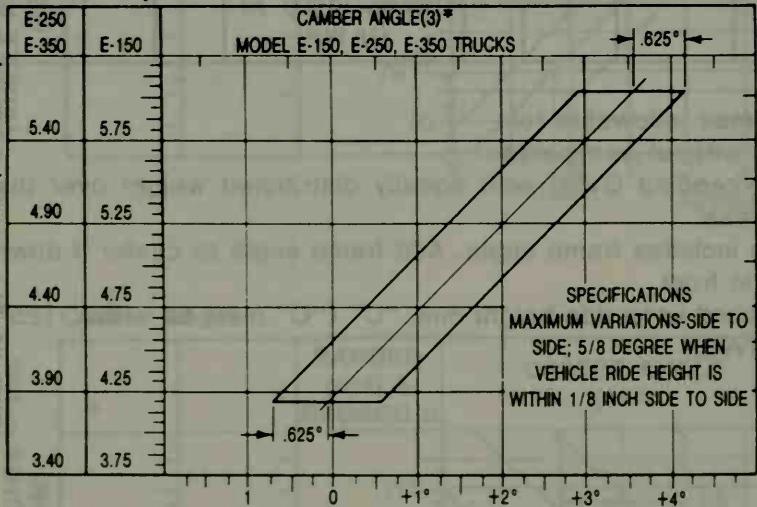
ALIGNMENT SPECIFICATIONS — E-150-350 — CONT'D



Caster Specifications



Camber Specifications



*INCLUDES AXLE AND SPINDLE DEFLECTIONS

NOTES:

- (1) Lateral tilt spec's are max. allowable for:
 Vehicle at curb weight without occupants.
 Vehicle loaded (not exceeding GVW) with equally distributed weight over the cargo and occupant areas.
- (2) Measured caster angle includes frame angle. Add frame angle to caster if down in front; subtract if up in front.
- (3) Caster and camber depend upon ride height dim. "C" ("C" must be within .125" side to side to use curves).

Chassis — Suspension — Front

ALIGNMENT SPECIFICATIONS — F-150 — F-250 — F-350 (4x2), (4x4) AND BRONCO

| Truck Model (Axe) | Front Axle Capacity | Alignment Factors | Alignment Specifications | | | | Max. Variation Between Wheels | Standard Vehicle Attitude-Ref. | | | Remarks | |
|---------------------------|---------------------|-------------------|--------------------------|-------------------|----------------|--------------|-------------------------------|--|--------------------------------|-------------------------------|----------------|---|
| | | | Nominal | Preferred Setting | Checking Range | | | Lateral Tilt(3) (Side to Side Height Differences) | | Dog- Track | | |
| | | | | | Min. | Max. | | "D" Front Wheelhouse Opening | "E" Rear Wheelhouse Opening | "G" Rear End of Pickup Box | | |
| F-150 (4x2) | 2600 lbs. | Caster(4) | — | (2) | (1) | (1) | 1.5° | 15mm (0.6") | 20mm (0.8") | 20mm (0.8") | 30mm (1.2") | For Caster and Camber at any particular Dimension "A", refer to the Caster and Camber Curves. Dimension "A" must be such that the right is 0-10mm (0.04") less than the left. |
| | | Camber | — | (2) | (1) | (1) | 0.7° | | | | | |
| | | Toe-in | — | 1/32" -IN | 3/32" -OUT | 5/32" -IN | — | | | | | |
| | | King Pin Angle | 13° | — | — | — | — | | | | | |
| F-150 (4x2) | 3400 lbs. | Caster(4) | — | (2) | (1) | (1) | 1.5° | 15mm (0.6") | 20mm (0.8") | 20mm (0.8) | 30mm (1.2") | |
| | | Camber | — | (2) | (1) | (1) | 0.7° | | | | | |
| | | Toe-in | — | 1/32" -IN | 3/32" -OUT | 5/32" -IN | — | | | | | |
| | | King Pin Angle | 13° | — | — | — | — | | | | | |
| F-250/ 350 (4x2) | 3850 lbs. | Caster(4) | — | (5) | (2) | (2) | — | 15mm (0.6") | 20mm (0.8") | 15mm (0.6") | 30mm (1.2") | |
| | | Camber | — | (5) | (2) | (2) | — | | | | | |
| | | Toe-in | — | 3/32" -IN | 1/32" -OUT | 7/32" -IN | — | | | | | |
| | | King Pin Angle | 8° | — | — | — | — | | | | | |
| Bronco, F-150 (4x4) | 3550 lbs. | Caster(4) | — | (2) | (1) | (1) | 1.5° | 15mm (0.6") | 20mm (0.8") | 20mm (0.8") | 30mm (1.2") | Ride Height (Dimension "B") must be within 4mm (0.1") side to side to use Caster and Camber Curves. |
| | | Camber | — | (2) | (1) | (1) | 0.7° | | | | | |
| | | Toe-in | — | 1/32" -IN | 3/32" -OUT | 5/32" -IN | — | | | | | |
| | | King Pin Angle | 13° | — | — | — | — | | | | | |

Chassis — Suspension — Front

ALIGNMENT SPECIFICATIONS — F-150 — F-250 — F-350 (4x2), (4x4) AND BRONCO — CONT'D

| Truck Model (Axe) | Front Axle Capacity | Alignment Factors | Alignment Specifications | | | | Max. Variation Between Wheels | Standard Vehicle Attitude-Ref. | | Remarks | |
|--------------------------|------------------------|-------------------|--------------------------|-------|-------------------|-------|-------------------------------|--|----------------|----------------|----------------|
| | | | Nominal | | Preferred Setting | | | Lateral Tilt(3) (Side to Side Height Differences) | Dog-Track | | |
| | | | Min. | Max. | Min. | Max. | | Min. | Max. | | |
| F-250, F-350 (4x4) | 3800 lbs. 4500 lbs. | Caster(4) | — | (2) | (1) | (1) | 1.5° | 15mm (0.6") | 20mm (0.8") | 20mm (0.8") | 30mm (1.2") |
| | | Camber | — | (2) | (1) | (1) | 0.7° | | | | |
| | | Toe-in | — | 1/32" | 3/32" | 5/32" | — | | | | |
| | | King Pin Angle | 13° | — | — | — | — | | | | |

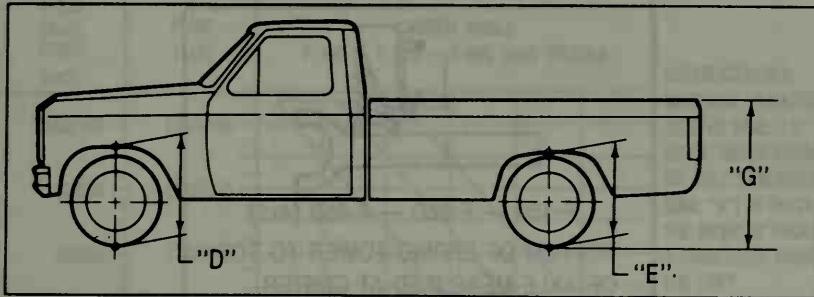
NOTES:

- (1) See Caster/Camber curves. Caster/Camber setting depends on ride height.
- (2) Caster/Camber values are determined by ride height. Camber is adjustable in service only.
- (3) Lateral vehicle tilt specifications are maximum allowable for:
 - Vehicle at curb weight without occupants.
 - Vehicle loaded (not exceeding GVW) with equally distributed weight over the cargo and occupant areas.
- (4) Caster angle includes frame angle — add frame angle to caster if down in front. Subtract frame angle from caster if up in front.

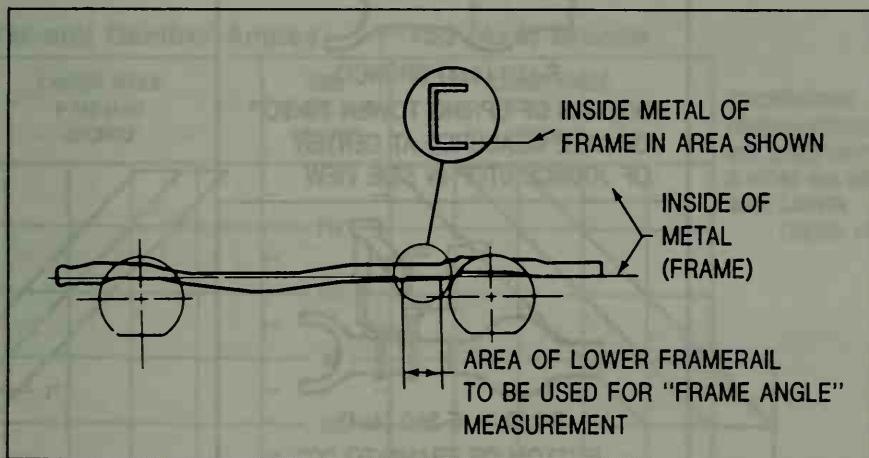
Chassis — Suspension — Front

ALIGNMENT SPECIFICATIONS — F-150 — F-250 — F-350 (4x2), (4x4),
BRONCO — CONT'D

Lateral Height



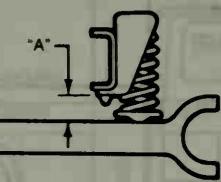
Dog-Track



Chassis — Suspension — Front

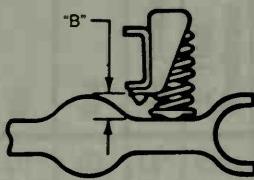
**ALIGNMENT SPECIFICATIONS — F-150 — F-250 — F-350 (4x2), (4x4),
BRONCO — CONT'D**

Ride Height



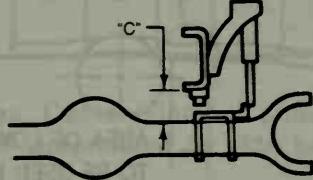
F-150 — F-250 — F-350 (4x2)

BOTTOM OF SPRING TOWER TO TOP
OF AXLE MEASURED AT CENTER
OF JOUNCE STOP IN SIDE VIEW



F-150 (4x4) BRONCO

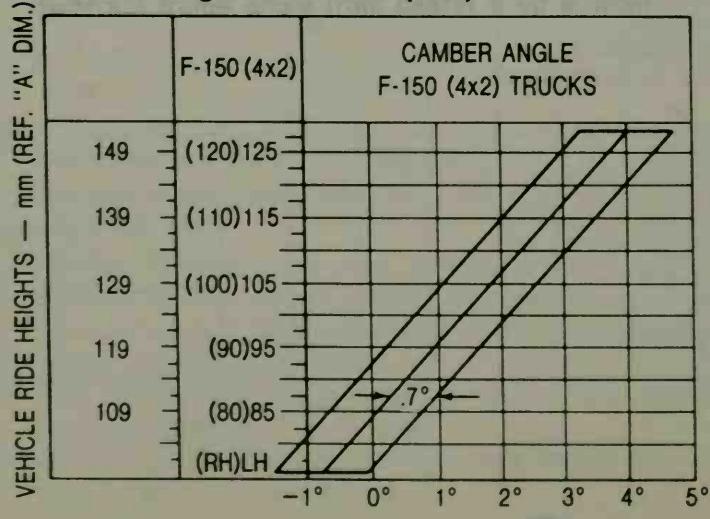
BOTTOM OF SPRING TOWER TO TOP
OF AXLE MEASURED AT CENTER
OF JOUNCE STOP IN SIDE VIEW



F-250 - F-350 (4x4)

BOTTOM OF FRAME TO "C"
TOP OF AXLE

Camber Angles — F-150 (4x2)

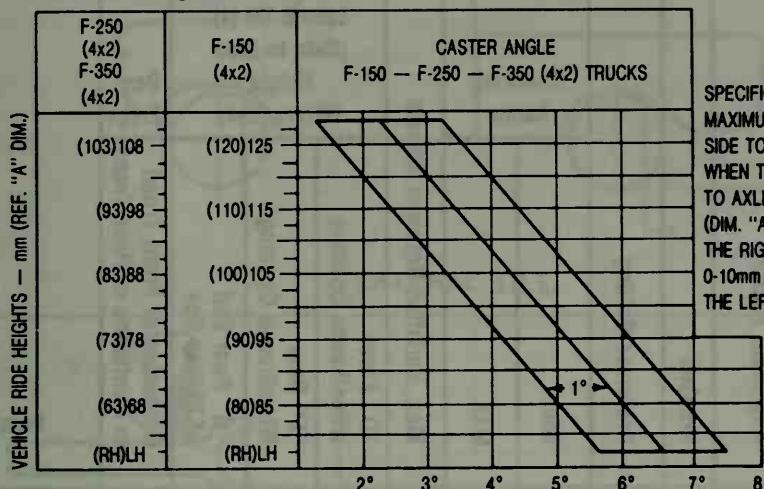


SPECIFICATIONS:
MAXIMUM VARIATIONS
SIDE TO SIDE: .7° WHEN
TRUCK AXLE TO FRAME
RIDE HEIGHT (DIM. "A")
IS SUCH THAT THE
RIGHT IS FROM 0-10mm
LESS THAN THE LEFT.

Chassis — Suspension — Front

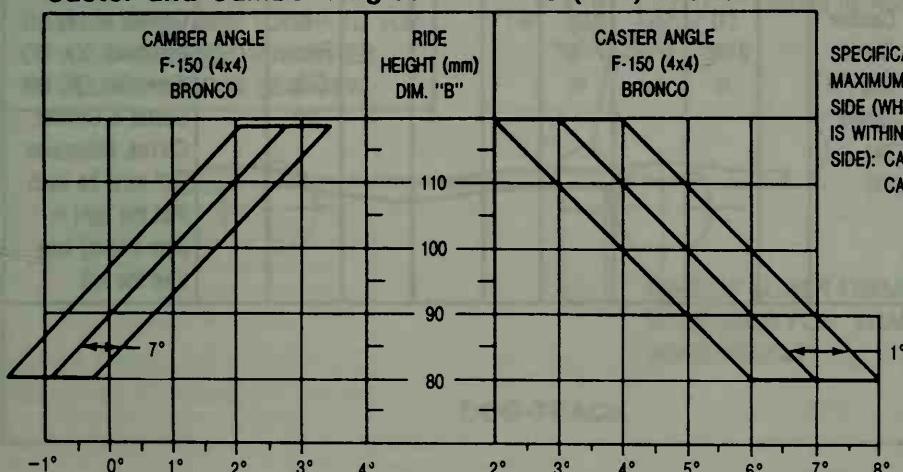
ALIGNMENT SPECIFICATIONS — F-150 (4x2), F-150-350 (4x4), BRONCO — CONT'D

Caster Angles — F-150 (4x2)



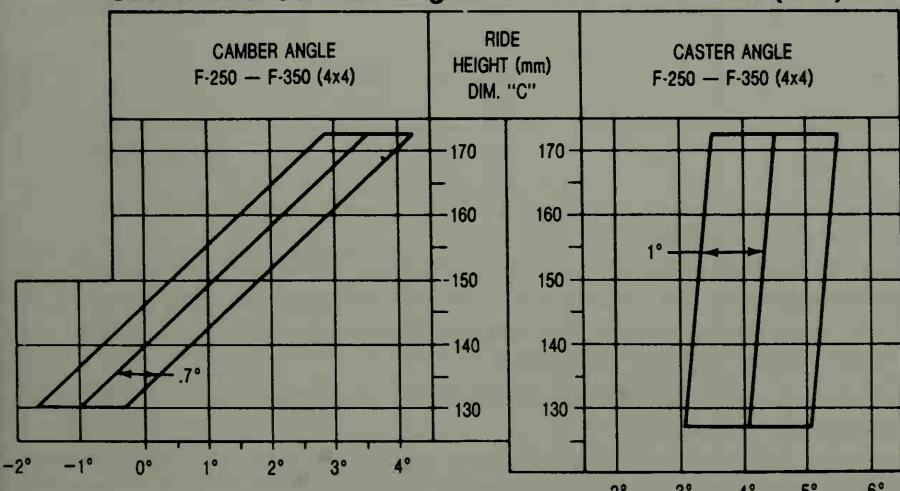
SPECIFICATIONS:
MAXIMUM VARIATIONS
SIDE TO SIDE: 1.5°
WHEN TRUCK FRAME
TO AXLE RIDE HEIGHT
(DIM. "A") IS SUCH THAT
THE RIGHT IS FROM
0-10mm LESS THAN
THE LEFT.

Caster and Camber Angles — F-150 (4x4) Bronco



SPECIFICATIONS:
MAXIMUM VARIATION SIDE TO
SIDE (WHEN RIGHT HEIGHT
IS WITHIN 4mm SIDE TO
SIDE): CAMBER: .7°
CASTER: 1.5°

Caster and Camber Angles — F-250 — F-350 (4x4)



SPECIFICATIONS:
MAXIMUM VARIATION SIDE
TO SIDE (WHEN RIDE
HEIGHT IS WITHIN
4mm SIDE TO SIDE):
CAMBER: .7°
CASTER: 1.5°

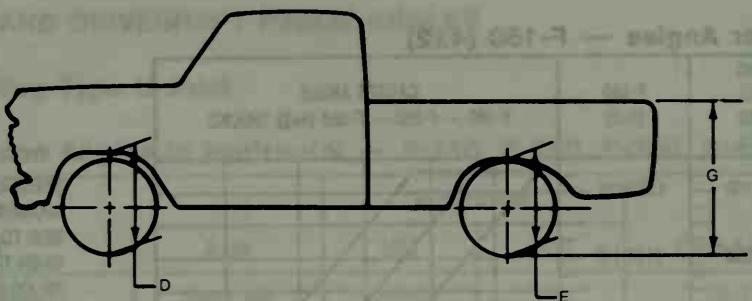
Chassis — Suspension — Front

ALIGNMENT SPECIFICATIONS — F-250/350 (4x2)

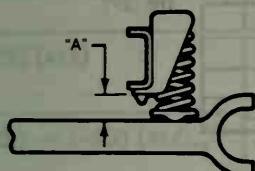
| Model | Front Axle Capacity | Alignment Factors | Alignment Specifications | | | | Max. Variation Between Wheels | Standard Vehicle Attitude-Ref. | | | Remarks | | |
|--------------------------|---------------------|---|-------------------------------------|----------------------------|---------------------------|--------------|-------------------------------|---|-----------------------------|---|---------|--|--|
| | | | Nominal | Preferred Setting | Checking Range | | | Lateral Tilt (4) (Side to Side Height Differences) | | Dog-Track | | | |
| | | | | | Min. | Max. | | "D" Front Wheelhouse Opening | "E" Rear Wheelhouse Opening | | | | |
| F-250— F-350 (4x2) | 3850 lbs. | Caster(5) Camber Toe In King Pin Angle | 8° (1) (1) 3/32" in | (2) (2) 1/32" out | (2) (2) 7/32" in | 1.5° 0.7° | 15mm 20mm | 15mm at Frame Side-rail | 15mm 30mm | For Caster & Camber at any particular dimension "A" see Caster & Camber Curves. Dimension "A" must be such that the right is 5mm (-5mm) less than the left. | | | |

Chassis — Suspension — Front

ALIGNMENT SPECIFICATIONS — F-250/350 (4x2)

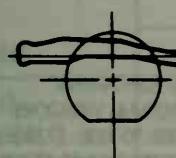


LATERAL TILT



F-250 — F-350 (4x2)
BOTTOM OF SPRING TOWER TO TOP
OF AXLE MEASURED AT CENTER
OF JOUNCE STOP IN SIDE VIEW

INSIDE METAL OF
FRAME IN AREA SHOWN



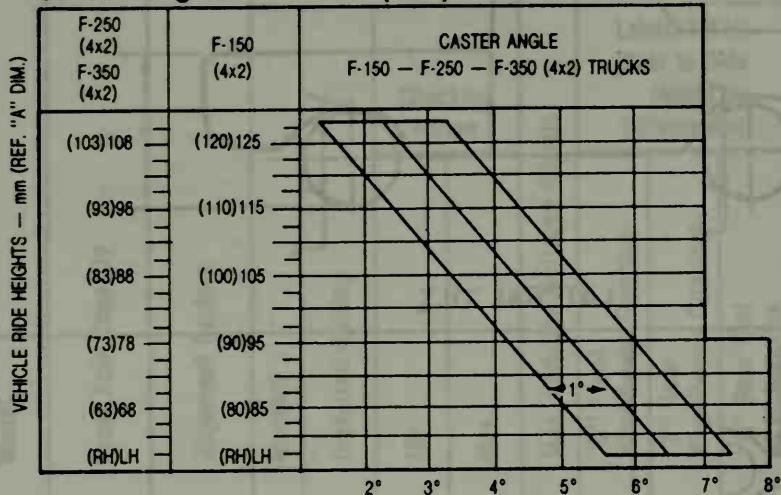
INSIDE OF
METAL
(FRAME)
AREA OF LOWER FRAMERAIL
TO BE USED FOR "FRAME ANGLE"
MEASUREMENT

DOG-TRACK

Chassis — Suspension — Front

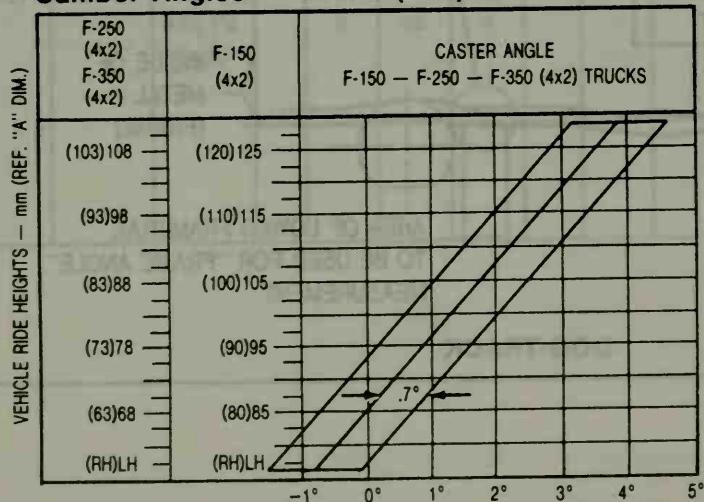
ALIGNMENT SPECIFICATIONS — F-250/350 (4x2) — CONT'D

Caster Angles — F-150 (4x2)



SPECIFICATIONS:
MAXIMUM VARIATIONS
SIDE TO SIDE: 1.5°
WHEN TRUCK FRAME
TO AXLE RIDE HEIGHT
(DIM. "A") IS SUCH THAT
THE RIGHT IS FROM
0-10mm LESS THAN
THE LEFT.

Camber Angles — F-150 (4x2)



SPECIFICATIONS:
MAXIMUM VARIATIONS
SIDE TO SIDE: .7° WHEN
TRUCK AXLE TO FRAME
RIDE HEIGHT (DIM. "A")
IS SUCH THAT THE
RIGHT IS FROM 0-10mm
LESS THAN THE LEFT.

NOTES:

- (1) King Pin Angle
Caster & Camber are not adjustable.
- (2) See Caster/Camber Curves. Caster/Camber setting depends on ride height.
- (3) Caster & King Pin angle are not adjustable. Camber depends on ride height.
- (4) Lateral vehicle tilt specifications are maximum allowable for:
 - Vehicle at curb weight without occupants.
 - Vehicle loaded (not exceeding GVW) with equally distributed weight over the cargo and occupant areas.
- (5) Caster angle includes frame angle — add frame angle to caster if down in front; subtract frame angle from caster if up in front.

Chassis — Suspension — Front

SERVICE SPECIFICATIONS

FRONT AXLE AND DRIVESHAFT PINION ANGLES

Single Snap Ring Type U-Joint

Front Axle Pinion Angles to Horizontal — F-150, F-250, F-350, Bronco (4x4)

| Model | Axle | Wheelbase | | Curb Load Empty |
|---------------------|------------------|-----------|------|-----------------|
| | | MM | Inch | |
| F-150 (4x4), Bronco | Dana 44 IFS | 2260 | 104 | 2-3/4° (1) |
| | | 2967 | 117 | |
| | | 3378 | 133 | |
| | | 3937 | 155 | |
| F-250 (4x4) | Dana 44 IFSHD | 3378 | 133 | 6-3/4° (1) |
| | | 3937 | 155 | |
| F-250 — F-350 (4x4) | Dana 50 IFS | 3378 | 133 | 6-3/4° (1) |

(1) Above horizontal.

CE3918-2C

Front Driveshaft Angles to Horizontal Dana 50 IFS Front Drive Axle — F-350 (4x4)

| Model | Wheelbase | | Engine | Transmission | Curb Load Empty |
|------------------|-----------|------|--------|--------------|-----------------|
| | MM | Inch | | | |
| F-350 (4x4) | 3378 | 133 | All | All | 2-1/2° |
| F-250 H.D. (4x4) | | | | | |

CE3919-2C

Front Driveshaft Angles to Horizontal — F-150, F-250, Bronco (4x4)

Dana 44 IFS and 44 IFSHD Axle

| Model | Wheelbase | | Engine | Transmission | Curb Load Empty |
|--------------------|-----------|------|--------|--------------|-----------------|
| | MM | Inch | | | |
| F-150 (4x4) Bronco | 2260 | 104 | All | All | 1/4° |
| | 2967 | 117 | | | |
| | 3378 | 133 | | | |
| | 3937 | 155 | | | |
| F-250 (4x4) LD | 3378 | 133 | All | All | 2-3/4° |
| | 3937 | 155 | | | |

Driveline Angle — Front

| Model | Wheelbase | Engine | Transmission | Driveshaft Angle | Pinion Angle |
|----------------------------|-----------|--------|--------------|------------------|--------------|
| Ranger (4x4) and Bronco II | All | All | C5/4-Speed | 2.8° | 4.4° |
| | | | 5-Speed | 3.6° | 4.4° |

Chassis — Suspension — Front

TORQUE SPECIFICATIONS

Ranger (4x2)

| Description | Torque Specs. | |
|---|---------------|---------|
| | N·m | Ft-Lb |
| Axle Arm to Bracket Nut | 163-203 | 120-150 |
| Axle Arm Bracket to Frame Nut | 95-125 | 70-92 |
| Bumper to Spring Seat Bolt | 18-25 | 13-18 |
| Front Shock Absorber to Radius Arm Nut | 66-92 | 48-68 |
| Front Shock Absorber to Spring Seat Nut | 34-47 | 25-35 |
| Pitman Arm to Drag Link Nut | 68-102 | 51-75 |
| Radius Arm to Frame Nut | 109-163 | 81-120 |
| Radius Arm Bracket to Frame Bolt | 104-152 | 77-110 |
| Radius Arm Bracket Connecting Bolts | 47-68 | 35-50 |
| Stabilizer Bar to Mounting Bracket Bolt | 47-68 | 35-50 |
| Stabilizer Bar to Radius Arm Nut | 65-88 | 48-64 |
| Tie Rod Adjusting Sleeve | 40-57 | 30-42 |
| Tie Rod to Spindle Nut | 68-102 | 51-75 |
| Lower Ball Joint Stud Nut | 141-198 | 104-146 |
| Upper Ball Joint Stud Nut | 115-150 | 85-110 |

Chassis — Suspension — Front

TORQUE SPECIFICATIONS — CONT'D

F-150-350, E-150-350 (4x2)

| Description | F-150 (4x2) | | F-250 — F-350 (4x2) | | E-150 — E-250 — E-350 | |
|---|-------------|--------|------------------------|--------|--------------------------|--------|
| | N·m | Ft-Lbs | N·m | Ft-Lbs | N·m | Ft-Lbs |
| Jounce Bumper to Frame Bolt | 19-29 | 14-22 | 19-29 | 14-22 | — | — |
| Lock Pin to Spindle Nut | — | — | 52-84 | 38-62 | 52-84 | 38-62 |
| Radius Arm to Rear Bracket Nut | 109-162 | 80-120 | 109-162 | 80-120 | 109-162 | 80-120 |
| Radius Arm Rear Bracket to Frame Bolt | 105-135 | 77-100 | 105-135 | 77-100 | 102-142 | 75-105 |
| Shock Absorber to Lower Bracket Nut and Bolt | 55-81 | 40-60 | 55-81 | 40-60 | 55-81 | 40-60 |
| Shock Absorber to Upper Spring Seat Nut | 34-47 | 25-35 | 21-33 | 15-25 | 25-37 | 18-28 |
| Shock Absorber Bracket to Radius Arm Nut and Bolt | 37-50 | 27-37 | 37-50 | 27-37 | 95-128 | 70-95 |
| Spindle Pin Plug to Spindle Nut | — | — | 48-67 | 35-50 | 48-67 | 35-50 |
| Stabilizer Bar Link to Bracket | 71-100 | 52-74 | 71-100 | 52-74 | 55-81 | 40-60 |
| Stabilizer Bar Link to Stabilizer Bar | 71-100 | 52-74 | 71-100 | 52-74 | 25-37 | 18-28 |
| Stabilizer Bar Retainer to Frame Crossmember Mounting Bracket | 37-50 | 27-37 | 37-50 | 27-37 | 21-33 | 15-25 |
| Steering Linkage to Spindle Nut | 94-135 | 70-100 | 94-135 | 70-100 | 94-135 | 70-100 |

Chassis — Suspension — Front

TORQUE SPECIFICATIONS — CONT'D

Ranger (4x4)

| Description | Torque Limits | |
|---|---------------|---------|
| | N·m | (ft-lb) |
| Axle Pivot Bolt | 163-203 | 120-150 |
| Jounce Bumper Bolt | 15-25 | 11-19 |
| Radius Arm to Rear Bracket Nut | 109-162 | 80-120 |
| Radius Arm Front Bracket and Axle Stud | 217-298 | 160-220 |
| Radius Arm Front Bracket Front Bolts | 37-50 | 27-37 |
| Radius Arm Front Bracket Lower Bolts | 217-298 | 160-220 |
| Shock Absorber to Radius Arm Nut and Bolt | 57-97 | 42-72 |
| Shock Absorber to Upper Seat | 34-47 | 25-35 |
| Spring Retainer Nut | 95-135 | 70-100 |
| Stabilizer Bar Retainer Bolts | 104-150 | 77-110 |
| Stabilizer Bar U-Bolt Nuts | 66-92 | 48-68 |

Chassis — Suspension — Front

TORQUE SPECIFICATIONS (CONT'D)

F-150-350 (4x4), Bronco

| Description | Torque | |
|--|-------------|---------|
| | (ft-lb) | N·m |
| Front Spring to Axle U-Bolt — F-250/F-350 (4x4) | 85-120 | 115-163 |
| Front Spring Assembly to Hanger Bracket — F-250/F-350 (4x4) | 120-150 | 163-203 |
| Front Spring Shackle to Shackle Bracket and Spring — F-250/F-350 (4x4) | 150-210 | 203-285 |
| Front Spring to Shackle — F-250/F-350 (4x4) | 120-150 | 163-203 |
| Radius Arm to Bracket — Bronco, F-150 (4x4) | 80-100 | 109-134 |
| Spring Retainer to Upper Spring Seat — Bronco, F-150 (4x4) | Screw 13-18 | 18-24 |
| Lower Spring Retainer to Radius Arm — Bronco, F-150 (4x4) | 70-100 | 94-134 |
| Front Shock Bracket to Frame — F-250/F-350 (4x4) | 52-74 | 55-81 |
| Front Shock to Shock Bracket — Lower — Bronco, F-150 (4x4) | 40-60 | 55-81 |
| Front Shock Absorber Stud — Upper — Bronco, F-150 (4x4) F-250/F-350 (4x4) | 25-35 | 34-37 |
| Front Shock to Front Spring Plate Spacer — F-250/F-350 (4x4) | 52-74 | 71-100 |
| Front Shock to Bracket — Upper — Bronco, F-150 (4x4) | 25-35 | 34-37 |
| Front Jounce Bumper to Bumper Bracket — F-250/F-350 (4x4) | 19-30 | 26-41 |
| Bumper Bracket to Frame — F-250/F-350 (4x4) | 52-74 | 71-100 |
| Front Jounce Bumper to Upper Spring Seat — Bronco, F-150 (4x4) | 13-18 | 18-24 |
| Radius Arm Pivot Bracket to Frame — Bronco, F-150 (4x4) | 77-110 | 104-149 |
| Stabilizer Bar Link to Bracket — Bronco, F-150 (4x4) | 52-74 | 71-100 |
| Stabilizer Bar Link to Stabilizer Bar — Bronco, F-150 (4x4) | 52-74 | 71-100 |
| Stabilizer Bar Retainer to Bracket and Bracket to Frame — Bronco, F-150 (4x4) — Sno-Fitter | 27-37 | 37-50 |
| Stabilizer Bar Bracket to Bracket — F-150 (4x4) SuperCab | 27-37 | 37-50 |
| Stabilizer Bar Retainer to Frame — F-150 (4x4) SuperCab | 52-74 | 71-100 |
| Stabilizer Bar Retainer to Crossmember and Mounting Bracket — F-150 (4x4) Regular Cab | 27-37 | 37-50 |
| Axle Pivot Bracket to Frame — F-150 (4x4) Bronco | 77-110 | 104-149 |
| Axle Pivot Bracket to Frame — F-250/F-350 (4x4) Bronco | 77-110 | 104-149 |

Chassis — Suspension — Front

VEHICLE HEIGHT DATA

Ranger, Bronco II

| Model | Wheelbase mm(in.) | Body Style | GVWR Kg. (Lbs.) | "F" Height @ Front Wheel Δ | |
|---------------------------|----------------------|----------------|--|---|--|
| | | | | Loaded Height @ Spring Rating mm(in.) | Height at Base Curb Wt. mm(in.) |
| Ranger Reg. Cab 4x2 | 2740(107.9) | P/U | 1714(3780) | 367(14.47) | 392(15.45) |
| | 2892(113.9) | P/U | 1986(4380) 1724(3800) 2004(4420) | 379(14.92) 367(14.47) 379(14.92) | 404(15.89) 392(15.44) 403(15.88) |
| Ranger Reg. Cab 4x2 | 2740(107.9) | P/U | 1814(4000) | 449(17.68) | 469(18.48) |
| | 2892(113.9) | P/U | 2005(4420) 1832(4040) 2032(4480) | 450(17.71) 449(17.68) 450(17.71) | 470(18.50) 474(18.65) 474(18.68) |
| Ranger Reg. Cab 4x2 | 2892(113.9) | Chassis Cab | 1932(4260) 2213(4880) | 374(14.73) 379(14.92) | 395(15.58) 405(15.94) |
| Bronco II 4x4 | 2388(94.0) | 4 Pass. | 1787(8940) 1941(4280) | 449(17.68) 449(17.68) | 468(18.44) 478(18.82) |

Note: All vehicle height dimensions shown are from ground to "Frame Datum Line."

Δ The height data shown represents dimensions of a nominal vehicle with no options. Actual height may vary due to production tolerances.

| Model | "R" Height @ Rear Axle Δ | | "LH" Height From Ground @ End of Frame (Standard Springs) Δ mm(in.) | "CH" Overall Height of Vehicle (Standard Springs) Δ mm(in.) | | |
|---------------------------|---|--|--|--|-------------|--|
| | Loaded Height @ Spring Rating mm(in.) | Height At Base Curb Wt. mm(in.) | | Empty | Loaded | |
| | | | | Empty | Loaded | |
| Ranger Reg. Cab 4x2 | 362(14.47) | 462(18.17) | 486(19.06) | 361(14.21) | 1627(64.05) | |
| | 374(14.72) | 480(18.91) | 505(19.88) | 372(14.66) | 1642(64.64) | |
| | 362(14.27) | 459(18.06) | 483(19.00) | 361(14.20) | 1624(63.92) | |
| | 374(14.27) | 478(18.81) | 505(19.86) | 372(14.65) | 1639(64.51) | |
| Ranger Reg. Cab 4x4 | 445(17.52) | 541(21.28) | 564(22.19) | 444(17.47) | 1705(67.12) | |
| | 446(17.55) | 547(21.52) | 571(22.49) | 444(17.50) | 1708(67.25) | |
| | 445(17.52) | 537(21.16) | 560(22.06) | 444(17.46) | 1704(67.08) | |
| | 446(17.55) | 543(21.39) | 568(22.36) | 444(17.49) | 1707(67.21) | |
| Ranger Reg. Cab 4x2 | 369(14.53) | 493(19.41) | 528(20.78) | 372(14.46) | 1642(64.64) | |
| | 374(14.72) | 473(18.64) | 498(19.61) | 372(14.65) | 1637(64.46) | |
| Bronco II 4x4 | 445(17.52) | 498(19.61) | 541(20.02) | 443(17.46) | 1732(68.19) | |
| | 445(17.52) | 509(20.02) | 520(20.48) | 443(17.46) | 1743(68.60) | |

Chassis — Suspension — Front

VEHICLE HEIGHT DATA — CONT'D

F150-350, Bronco

| Model | Wheelbase mm(in.) | Body Style | GVWR Kg. (Lbs.) | "F" Height @ Front Wheel ^Δ | | |
|---------------------------------------|----------------------|---------------|--------------------------|---|--|--------------------------|
| | | | | Loaded Height @ Spring Rating mm(in.) | Height at Base Curb Wt. mm(in.) | |
| Model | Wheelbase mm(in.) | Body Style | GVWR Kg. (Lbs.) | Std. Spring | Std. Spring | H.D. Spring |
| Bronco 4x4 | 2660(104.7) | 2 & 3 Pass. | 2427(5350) | 488(19.20) | 507(20.00) | — |
| F-150 Reg. Cab 4x2 | 2967(116.8) | P/U | 2381(5250) | 416(16.37) | 437(17.19) | 462(18.20) |
| | 3378(133.0) | P/U | 2766(6100) | 416(16.37) | 451(17.74) | 483(19.02) |
| F-150 Reg. Cab 4x2 | 2967(116.8) | P/U | 2178(4800) 2381(5250) | 424(16.69) 437(17.19) | 438(17.24) 452(17.80) | 449(17.69) 463(18.25) |
| | 3526(138.8) | P/U | 2744(6050) | 451(17.74) | 474(18.64) | 480(18.90) |
| F-150 Super Cab 4x2 | 3937(155.0) | P/U | 2834(6250) | 451(16.87) | 481(18.92) | 485(19.11) |
| | 2967(116.8) | P/U | 2540(5600) | 502(19.79) | 536(21.11) | 542(21.33) |
| F-150 Reg. Cab 4x4 | 3378(133.0) | P/U | 2540(5600) | 502(19.79) | 530(20.90) | 537(21.14) |
| F-150 [☆] Reg. Cab 4x4 | 2967(116.8) | P/U | 2510(5600) | 503(19.79) | 536(21.09) | 541(21.31) |
| F-150 Super Cab 4x4 | 3937(155.0) | P/U | 2925(6450) | 502(19.79) | 529(20.83) | 535(21.06) |
| F-250 Reg. Cab 4x4 | 3378(133.0) | P/U | 2855(6300) | 506(19.93) | 534(21.03) | 540(21.25) |

Note: All vehicle height dimensions shown are from ground to "Frame Datum Line."

Δ The height data shown represents dimensions of a nominal vehicle with no options. Actual height may vary due to production tolerances.

† Auxiliary springs.

☆ Flareside pickup.

Chassis — Suspension — Front

VEHICLE HEIGHT DATA — CONT'D

F-150-350, Bronco — Cont'd

| Model | Loaded Height @ Spring Rating mm(in.) | At Base Curb Weight mm(in.) | | Δ† "LH" Height From Ground Standard Springs mm(in.) | | Δ "CH" Overall Vehicle Standard Springs mm(in.) | |
|--|--|-----------------------------------|----------------|--|----------------|--|-----------------|
| | Std. Spring | Std. Spring | H.D. Spring | Empty | Loaded | Empty | Loaded |
| Bronco 4x4 | 480 (18.89) | 531 (20.92) | — | 779 (30.66) | 708 (27.87) | 1851 (72.87) | 1812 (71.32) |
| F150 Reg. Cab 4x2 | 442 (17.39) | 522 (20.57) | 554 (21.79) | 547 (21.55) | 434 (17.64) | 1780 (70.07) | 1732 (68.20) |
| | 465 (18.33) | 565 (22.65) | 567 (22.34) | 592 (23.31) | 470 (18.51) | 1809 (71.21) | 1750 (68.91) |
| F-150☆ Reg. Cab 4x2 | 442 (17.39) | 520 (20.47) | 550 (21.66) | 544 (21.40) | 443 (17.46) | 1779 (70.05) | 1732 (68.20) |
| F-150 Super Cab 4x2 | 465 (18.33) | 557 (21.94) | 561 (22.08) | 582 (22.90) | 470 (18.51) | 1816 (71.51) | 1759 (69.24) |
| | 465 (18.33) | 556 (21.89) | 560 (22.05) | 576 (22.76) | 470 (18.49) | 1815 (71.46) | 1758 (69.20) |
| F-150 Reg. Cab 4x4 | 508 (19.99) | 607 (23.90) | — | 630 (24.82) | 509 (20.05) | 1857 (73.12) | 1798 (70.78) |
| F-150☆ Reg. Cab 4x4 | 508 (19.99) | 608 (23.95) | 605 (23.80) | 633 (24.93) | 509 (20.06) | 1864 (73.38) | 1798 (70.79) |
| F-150 Super Cab 4x4 | 508 (19.99) | 598 (23.54) | 600 (23.62) | 616 (24.25) | 509 (20.01) | 1861 (73.25) | 1805 (71.07) |
| F-250 Reg. Cab 4x2 | 498 (19.62) | 611 (24.06) | 616 (24.24) | 634 (24.98) | 496 (19.52) | 1861 (73.28) | 1796 (70.70) |
| Heavy Duty F-250 Reg. Cab 4x2 | 532 (20.95) | 639 (25.15) | — | 665 (26.20) | 535 (21.07) | 1883 (74.15) | 1819 (71.63) |

☆ Flareside Pickup

† Height from ground to top of open tailgate (with Bronco only).

Δ The height data shown represents dimensions of a nominal vehicle with no options. Actual height may vary due to production tolerances.

Chassis — Suspension — Front

VEHICLE HEIGHT DATA — CONT'D

F-150-350 — Cont'd

| Model | Wheelbase mm(in.) | Body Style | GVWR Kg. (Lbs.) | "F" Height @ Front Wheel Δ | | |
|--|----------------------|----------------|--------------------|---|--|----------------|
| | | | | Loaded Height @ Spring Rating mm(in.) | Height at Base Curb Wt. mm(in.) | H.D. Spring |
| Heavy-Duty F-250 Reg. Cab 4x2 | 3378(133.0) | P/U | 3900(8600) | 522(20.55) | 552(21.75) | 557(21.92) |
| Heavy-Duty F-250 SuperCab 4x2 | 3937(155.0) | P/U | 3993(8800) | 525(20.65) | 553(21.75) | 557(21.94) |
| F-250 Reg. Cab 4x4 | 3378(133.0) | P/U | 2993(6600) | 575(22.65) | 608(24.00) | 610(24.05) |
| Heavy-Duty F-250 Reg. Cab 4x4 | 3378(133.0) | P/U | 3900(8600) | 594(23.37) | 622(24.50) | 626(24.64) |
| Heavy-Duty F-250 SuperCab 4x4 | 3937(155.0) | P/U | 3900(8600) | 593(23.37) | 624(24.57) | — |
| F-250 Reg. Cab 4x2 | 3378(133.0) | Chassis Cab | 2948(6500) | 506(19.93) | 534(21.01) | 539(21.22) |
| Heavy-Duty F-250 Reg. Cab 4x2 | 3378(133.0) | Chassis Cab | 3900(8600) | 525(20.65) | 553(21.77) | 558(21.98) |

NOTE: All vehicle height dimensions shown are from ground to "Frame Datum Line."

- △ The height data shown represents dimensions of a nominal vehicle with no options. Actual height may vary due to production tolerances.
- To obtain ground to top of pickup box floor beads dimension at rear of box, add 197(7.76) for styleside pickup and 221(8.70) for flareside pickup rear vehicle heights.

Chassis — Suspension — Front

VEHICLE HEIGHT DATA — CONT'D

F-150-350 — Cont'd

| | Loaded Height @ Spring Rating mm(in.) | Height At Base Curb Wt. mm(in.) | | 'LH' Height From Ground @ End of Frame (Std. Springs) Δ• mm(in.) | | 'CH' Overall Height of Vehicle (Std. Springs) mm(in.) | |
|--|---|------------------------------------|----------------|--|----------------|--|-----------------|
| Model | Std. Spring | Std. Spring | H.D. Spring | Empty | Loaded | Empty | Loaded |
| Heavy-Duty F-250 SuperCab 4x2 | 535 (21.05) | 636 (25.04) | 627 (24.68) | 658 (25.99) | 537 (21.15) | 1891 (74.44) | 1829 (72.03) |
| F-250 Reg. Cab 4x4 | 550 (21.67) | 659 (25.93) | 665 (26.17) | 674 (26.54) | 543 (21.37) | 1923 (75.73) | 1857 (73.12) |
| Heavy-Duty F-250 Reg. Cab 4x4 | 586 (23.06) | 696 (27.40) | 690 (27.17) | 718 (28.28) | 583 (22.96) | 1948 (76.68) | 1883 (74.14) |
| Heavy-Duty F-250 SuperCab 4x4 | 586 (23.06) | 689 (27.14) | 685 (26.96) | 706 (27.81) | 584 (22.97) | 1954 (76.93) | 1890 (74.42) |
| F-250 Reg. Cab 4x2 | 498 (19.62) | 631 (24.85) | 634 (24.95) | 661 (26.01) | 496 (19.52) | 1870 (73.62) | 1796 (70.70) |
| Heavy-Duty F-250 Reg. Cab 4x2 | 547 (21.56) | 619 (24.37) | — | 635 (25.00) | 554 (21.82) | 1879 (73.99) | 1827 (71.95) |

Chassis — Suspension — Front

VEHICLE HEIGHT DATA — CONT'D

F-150-350 — Cont'd

| Model | Wheelbase mm(in.) | Body Style | GVWR Kg. (Lbs.) | "F" Height @ Front Wheel ^Δ | | |
|--|----------------------------|----------------------------------|--|--|--|--|
| | | | | Loaded Height @ Spring Rating mm(in.) | Height at Base Curb Wt. mm(in.) | H.D. Spring |
| Heavy-Duty F-250 Reg. Cab 4x2 | 3475(136.8) 4085(160.8) | Chassis Cab | 3900(8600) 4080(9000) | 525(20.65) 525(20.65) | 562(22.13) 563(22.15) | — — |
| Heavy-Duty F-250 Reg. Cab 4x4 | 3378(133.0) | Chassis Cab | 3900(8600) | 594(23.37) | 624(24.55) | 627(24.68) |
| F-350 Reg. Cab 4x2 | 3378(133.0) | P/U | 3945(8700) 4535(10,000) | 522(20.54) 503(19.82) | 550(21.65) 530(20.86) | 555(21.85) 535(21.28) |
| F-350 Crew Cab 4x2 | 4278(168.4) | P/U | 3946(8700) 4173(9200) | 522(20.54) 522(20.54) | 552(21.73) 552(21.73) | 557(21.95) 557(21.95) |
| F-350 Reg. Cab 4x4 | 3378(133.0) | P/U | 4082(9000) | 594(23.37) | 623(24.51) | — |
| F-350 Crew Cab 4x4 | 4278(168.4) | P/U | 4218(9300) | 594(23.37) | 621(24.46) | — |
| F-350 Reg. Cab 4x2 | 3475(136.8) 4085(160.8) | Chassis Cab Chassis Cab | 4037(8900) 4990(11,000) 4535(10,000) 4990(11,000) | 522(20.54) 503(19.82) 503(19.82) 503(19.82) | 553(21.79) 539(21.23) 543(21.36) 537(21.14) | 558(21.96) 543(21.38) 546(21.50) 541(21.29) |
| F-350 Reg. Cab 4x4 | 3378(133.0) | Chassis Cab | 4082(9000) | 594(23.37) | 622(24.51) | — |

NOTE: All vehicle height dimensions shown are from ground to "Frame Datum Line."

Δ The height data shown represents dimensions of a nominal vehicle with no options. Actual height may vary due to production tolerances.

Chassis — Suspension — Front

VEHICLE HEIGHT DATA — CONT'D

F-150-350 — Cont'd

| Model | "R" Height @ Rear AxleΔ | | | "LH" Height From Ground @ End of Frame (Std. Springs) Δ mm(in.) | | "CH" Overall Height of Vehicle (Std. Springs) Δ mm(in.) | |
|-------------------------------|--|--|--------------------------|---|--|--|--|
| | Loaded Height @ Spring Rating mm(in.) | Height At Base Curb Wt. mm(in.) | | | | | |
| | Std. Spring | Std. Spring | H.D. Spring | Empty | Loaded | Empty | Loaded |
| Heavy-Duty F-250 Reg. Cab 4x2 | 548(21.56) 548(21.56) | 619(24.37) 618(24.33) | — | 635(25.00) 631(24.86) | 554(21.82) 553(21.78) | 1879(73.99) 1876(73.85) | 1827(71.95) 1826(71.89) |
| Heavy-Duty F-250 Reg. Cab 4x4 | 586(23.06) | 709(27.92) | 701(27.60) | 735(28.95) | 583(22.96) | 1954(76.94) | 1883(74.14) |
| F-350 Reg. Cab 4x2 | 535(21.05) 516(20.33) | 642(25.26) 619(24.36) | 632(24.87) 609(23.99) | 670(26.36) 646(25.43) | 539(21.20) 520(20.48) | 1883(74.15) 1862(73.31) | 1820(71.67) 1802(70.95) |
| F-350 Crew Cab 4x2 | 535(21.05) 535(21.05) | 636(25.04) 635(25.02) | — | 656(25.83) 656(25.81) | 538(21.17) 538(21.17) | 1894(74.57) 1894(74.57) | 1839(72.41) 1839(72.41) |
| F-350 Reg. Cab 4x4 | 585(23.02) | 702(27.62) | 691(27.22) | 726(28.57) | 582(22.91) | 1950(76.79) | 1883(74.12) |
| F-350 Crew Cab 4x4 | 586(23.06) | 686(27.01) | — | 702(27.62) | 584(22.98) | 1957(77.04) | 1904(74.95) |
| F-350 Reg. Cab 4x2 | 548(21.56) 530(20.88) 530(20.88) 530(20.88) | 619(24.37) 634(24.95) 634(24.96) 633(24.92) | — — — — | 637(25.10) 660(26.00) 660(25.98) 656(25.83) | 555(21.85) 538(21.18) 538(21.18) 537(21.13) | 1875(73.80) 1873(73.73) 1874(73.81) 1865(73.42) | 1826(71.88) 1808(71.18) 1808(71.18) 1806(71.11) |
| F-350 Reg. Cab 4x4 | 584(23.02) | 702(27.62) | 691(27.22) | 725(28.57) | 582(22.91) | 1950(76.79) | 1883(74.12) |

Chassis — Suspension — Front

VEHICLE HEIGHT DATA — CONT'D

E-150-350

| Model | Wheelbase | GVWR | "F" Height @ Front Wheel Δ | | |
|----------------|-----------|------|--|-------------------------------|----------------|
| | | | Loaded Height @ Spring Rating | Height at Base Curb Wt. | |
| | | | Std. Spring | Std. Spring | H.D. Spring |
| E-150 Van | 124 | 5250 | 21.51 | 23.42 | 23.71 |
| | | 6350 | 22.30 | 24.46 | 24.72 |
| | 138 | 5900 | 22.03 | 23.98 | 24.27 |
| E-150 SuperVan | 138 | 6050 | 22.30 | 24.42 | 24.70 |
| E-250 Van | 138 | 6750 | 24.14 | 26.40 | 26.62 |
| E-250 SuperVan | 138 | 7900 | 24.82 | 26.83 | 27.04 |
| E-350 Van | 138 | 8750 | 25.42 | 27.47 | 27.98 |
| | | 9500 | 25.42 | 27.91 | 28.09 |
| E-350 SuperVan | 138 | 9100 | 25.48 | 27.71 | 27.93 |

NOTE: All vehicle height dimensions shown are from ground to "Frame Datum Line."

Δ The height data shown represents dimensions of a nominal vehicle with no options. Actual height may vary due to production tolerances.

Chassis — Suspension — Front

VEHICLE HEIGHT DATA — CONT'D

E-150-350 — Cont'd

| Model | "R" Height @ Rear Axle Δ | | | "LH" Height From Ground @ End of Frame (Std. Springs) Δ | | "CH" Overall Height of Vehicle (Std. Springs) Δ | |
|----------------|--|----------------------------|----------------|--|--------|---|--------|
| | Loaded Height @ Spring Rating | Height At Base Curb Wt. | | | | | |
| | Std. Spring | Std. Spring | H.D. Spring | Empty | Loaded | Empty | Loaded |
| E-150 Van | 21.91 | 24.82 | 26.37 | 27.46 | 21.82 | 73.23 | 76.69 |
| | 22.12 | 26.97 | 26.85 | 27.71 | 22.09 | 81.00 | 77.08 |
| | 21.80 | 26.37 | — | 27.09 | 21.82 | 80.63 | 76.79 |
| E-150 SuperVan | 22.81 | 26.19 | — | 26.92 | 23.02 | 80.61 | 77.57 |
| E-250 Van | 24.58 | 28.50 | 28.54 | 29.05 | 24.69 | 82.84 | 79.36 |
| E-250 SuperVan | 25.29 | 28.70 | — | 29.47 | 25.48 | 83.09 | 80.06 |
| E-350 Van | 26.27 | 31.15 | — | 32.00 | 26.49 | 85.19 | 80.94 |
| E-350 SuperVan | 26.33 | 30.92 | — | 32.25 | 26.69 | 84.96 | 81.01 |

Chassis — Suspension — Front

VEHICLE HEIGHT DATA — CONT'D

E-150-350 — Cont'd

| Model | Wheelbase | GVWR | "F" Height @ Front Wheel Δ | | |
|---------------------------|-----------|---------|--|-------------------------------|----------------|
| | | | Loaded Height @ Spring Rating | Height at Base Curb Wt. | |
| | | | Std. Spring | Std. Spring | H.D. Spring |
| E-150 Wagon | 124 | 6000 | 22.03 | 23.68 | 23.99 |
| | | 6600 | 22.30 | 24.51 | 24.71 |
| | 138 | 6050 | 22.03 | 24.03 | 24.30 |
| | | 6600 | 22.30 | 24.30 | 24.56 |
| E-250 Wagon | 138 | 8550 | 24.92 | 27.73 | 27.87 |
| | | 8800 | 24.92 | 27.73 | 27.73 |
| E-250 Super Wagon | 138 | 8900 | 24.52 | 28.57 | — |
| | | 9300 | 24.52 | 27.84 | — |
| E-350 Super Wagon | 138 | 8700 | 25.23 | 27.29 | 27.49 |
| | | 9400 | 25.23 | 27.42 | 27.62 |
| E-350 Parcel Delivery Van | 138 | 8750 | 26.34 | 28.40 | 28.64 |
| | | 9700* | 25.84 | 27.94 | 28.16 |
| | 158 | 10,000* | 25.06 | 27.46 | 27.46 |

* Dual rear wheels.

NOTE: All vehicle height dimensions shown are from ground to "Frame Datum Line."

Δ The height data shown represents dimensions of a nominal vehicle with no options. Actual height may vary due to production tolerances.

Chassis — Suspension — Front

VEHICLE HEIGHT DATA — CONT'D

E-150-350 — Cont'd

| Model | "R" Height @ Rear Axle Δ | | | "LH" Height From Ground @ End of Frame (Std. Springs) Δ | | "CH" Overall Height of Vehicle (Std. Springs) Δ | |
|---------------------------------|--|----------------------------|----------------|--|--------|---|--------|
| | Loaded Height @ Spring Rating | Height At Base Curb Wt. | | | | | |
| | Std. Spring | Std. Spring | H.D. Spring | Empty | Loaded | Empty | Loaded |
| E-150 Wagon | 21.85 | 26.49 | — | 27.19 | 21.80 | 80.41 | 76.81 |
| | 22.12 | 26.61 | — | 27.13 | 22.07 | 80.78 | 77.08 |
| | 21.85 | 26.60 | — | 27.29 | 21.80 | 80.81 | 76.79 |
| | 22.12 | 26.86 | — | 27.54 | 22.07 | 81.07 | 77.06 |
| E-250 Wagon | 23.75 | 28.12 | — | 28.10 | 23.54 | 82.58 | 78.96 |
| | 23.75 | 28.12 | — | 28.82 | 23.54 | 82.38 | 78.96 |
| E-250 Super Wagon | 23.85 | 28.10 | — | 28.82 | 23.54 | 82.51 | 78.93 |
| | 23.85 | 27.82 | — | 28.39 | 23.54 | 82.38 | 78.93 |
| E-350 Super Wagon | 25.50 | 29.83 | — | 31.01 | 25.63 | 84.05 | 80.09 |
| | 25.50 | 29.62 | — | 30.64 | 25.63 | 83.93 | 80.49 |
| E-350 Parcel Delivery Van | 27.19 | 31.87 | — | 32.11 | 27.62 | 106.09 | 103.31 |
| | 27.34 | 30.28 | — | 31.46 | 28.10 | 105.58 | 103.10 |
| | 29.68 | 29.68 | — | 30.76 | 27.22 | 104.76 | 102.23 |

Chassis — Suspension — Front

VEHICLE HEIGHT DATA — CONT'D

E-150-350 — Cont'd

| Model | Wheelbase | GVWR | "F" Height @ Front Wheel Δ | | |
|--|-----------|---------|--|-------------------------------|----------------|
| | | | Loaded Height @ Spring Rating | Height at Base Curb Wt. | |
| | | | Std. Spring | Std. Spring | H.D. Spring |
| E-350 Commercial Stripped Chassis | 138 | 9550 | 20.87 | 23.85 | 23.68 |
| | 158 | 9800* | 21.79 | 24.56 | — |
| | 176 | 9700 | 20.87 | 23.75 | — |
| | | 9800* | 21.79 | 24.64 | — |
| E-350 Commercial Cutaway | 138 | 8900 | 21.19 | 23.20 | 23.44 |
| | | 9800* | 19.91 | 22.02 | 22.25 |
| | | 10,250* | 20.59 | 22.99 | — |
| | 158 | 9700* | 19.91 | 22.06 | 22.31 |
| | | 10,250* | 20.59 | 22.99 | — |
| | | 10,900* | 20.59 | 22.99 | — |
| | 176 | 10,600* | 20.59 | 22.32 | — |
| E-350 R.V. Cutaway | 138 | 9700 | 25.23 | 27.90 | 28.02 |
| | | 10,250* | 24.73 | 27.12 | 27.24 |
| | 158 | 11,000* | 24.73 | 26.93 | 27.08 |
| | | 10,250* | 24.63 | 26.26 | — |
| | 176 | 11,000* | 24.63 | 26.34 | — |

*Dual Rear Wheels

Note: All Vehicle Height Dimensions shown are from Ground to "Frame Datum Line."

Δ — The Height Data shown represents dimensions of a nominal vehicle with no options. Actual height may vary due to production tolerances.

Chassis — Suspension — Front

VEHICLE HEIGHT DATA — CONT'D

E-150-350 — Cont'd

| Model | "R" Height @ Rear Axle Δ | | | "CH" Overall Height of Vehicle (Standard Springs) Δ | |
|---|--|-------------------------------|----------------|--|--------|
| | Loaded Height @ Spring Rating | Height At Base Curb Wt. | | | |
| | Std. Spring | Std. Spring | H.D. Spring | Empty | Loaded |
| E-350 Commercial Stripped Chassis | 21.94 | 26.19 | 25.70 | 73.22 | 69.99 |
| | 23.51 | 26.25 | — | 73.73 | 70.97 |
| | 21.94 | 26.84 | 25.30 | 73.05 | 69.96 |
| E-350 Commercial Cutaway | 22.04 | 27.79 | — | 79.83 | 76.16 |
| | 21.41 | 25.74 | — | 78.33 | 75.15 |
| | 21.95 | 26.49 | — | 79.83 | 75.92 |
| | 20.76 | 26.43 | — | 78.28 | 74.84 |
| | 21.95 | 27.53 | — | 80.03 | 79.84 |
| | 21.95 | 27.53 | — | 80.03 | 79.85 |
| | 22.02 | 25.14 | — | 77.91 | 75.72 |
| | 26.08 | 31.58 | — | 84.12 | 80.25 |
| E-350 R.V. Cutaway | 25.87 | 30.64 | — | 82.86 | 79.87 |
| | 25.87 | 30.57 | — | 82.73 | 79.81 |
| | 25.87 | 30.62 | — | 82.28 | 79.77 |

Chassis — Suspension — Front

TREAD WIDTH/GROUND CLEARANCE

Ranger, Bronco II

| Model | Tire Size | Tread Width | | Ground Clearance | | | | | |
|---|---------------|----------------|----------------|------------------|-------|------------|-------|-----------------|----------|
| | | | | P | | S | | T | |
| | | FW | RW | Approach Angle | | Ramp Angle | | Departure Angle | |
| Model | Tire Size | Front | Rear | SWB | LWB | SWB | LWB | SWB | LWB |
| Ranger 4x2 2740(107.9) 2892(113.9) | P185/75R 14SL | 1397 (55.0) | 1388 (54.6) | 21.8° | 21.8° | 17.0° | 16.7° | 17.8° | 15.1°(a) |
| | P195/75R 14SL | 1397 (55.0) | 1388 (54.6) | | | | | | |
| | P205/75R 14SL | 1397 (55.0) | 1388 (54.6) | | | | | | |
| Ranger 4x4 2740(107.9) 2892(113.9) | P195/75R 15SL | 1436 (56.5) | 1400 (55.1) | 29.3° | 29.3° | 25.0° | 22.5° | 22.7° | 19.3° |
| | P205/75R 15SL | 1436 (56.5) | 1400 (55.1) | | | | | | |
| | | | | | | | | | |
| Bronco II 4x4 2388(94.0) | P195/75R 15SL | 1445 (56.9) | 1445 (56.9) | 29.5° | — | 25.1° | — | 24.8° | — |
| | P205/75R 15SL | 1445 (56.9) | 1445 (56.9) | | | | | | |

(a) 16.2° with Chassis Cab

(b) Chassis Cab only

Chassis — Suspension — Front

TREAD WIDTH/GROUND CLEARANCE — CONT'D

F-150-350, Bronco

| Model | Tire Size | Tread Width | | Ground Clearance | | | | | |
|--|------------------|----------------|----------------|------------------|-------|------------|-------|-----------------|----------|
| | | | | P | | S | | T | |
| | | FW | RW | Approach Angle | | Ramp Angle | | Departure Angle | |
| Model | Tire Size | Front | Rear | SWB | LWB | SWB | LWB | SWB | LWB |
| Bronco (U-150) 2660(104.7) | P215/75Rx15SL(a) | 1654 (65.1) | 1636 (64.4) | 34.1° | — | 20.2° | — | 20.6° | — |
| | P235/75Rx15XL | 1654 (65.1) | 1636 (64.4) | — | — | — | — | — | — |
| | 10.00R-15 | 1664 (65.5) | 1646 (64.8) | — | — | — | — | — | — |
| | 10.00-15 | 1664 (65.5) | 1646 (64.8) | — | — | — | — | — | — |
| F-150 4x2 Reg. Cab 2967(116.8) 3378(133.0) | P195/75Rx15SL(a) | 1654 (65.1) | 1636 (64.4) | 28.9° | 28.9° | 17.9° | 15.9° | 14.8°(b) | 14.8° |
| | P215/75Rx15SL(a) | 1654 (65.1) | 1636 (64.4) | — | — | — | — | — | — |
| | P235/75Rx15XL | 1654 (65.1) | 1636 (64.4) | — | — | — | — | — | — |
| F-150 4x2 Super Cab 3526(138.8) 3937(155.0) | P235/75Rx15XL | 1654 (65.1) | 1636 (64.4) | 31.1° | 31.2° | 17.4° | 15.6° | 14.0° | 14.0° |
| F-150 4x4 Reg. Cab 2967(116.8) 3378(133.0) | P235/75Rx15XL | 1654 (65.1) | 1636 (64.4) | 35.2° | 35.2° | 19.4° | 17.7° | 16.4° | 16.4° |
| | 10.00Rx15 | 1664 (65.5) | 1646 (64.8) | — | — | — | — | — | — |
| | 10.00x15 | 1664 (65.5) | 1646 (64.8) | — | — | — | — | — | — |
| F-150 4x4 Super Cab 3937(155.0) | P235/75Rx15XL | 1654 (65.1) | 1636 (64.4) | — | 35.3° | — | 16.1° | — | 16.4° |
| | 10.00R-15 | 1664 (65.5) | 1646 (64.8) | — | — | — | — | — | — |
| | 10.00-15 | 1664 (65.5) | 1646 (64.8) | — | — | — | — | — | — |
| F-250 4x2 Reg. & Chassis Cab 3378(133.0) | LT215/85Rx16(a) | 1669 (65.7) | 1633 (64.3) | — | 37.0° | — | 21.3° | — | 22.7°(c) |
| | LT235/85Rx16 | 1669 (65.7) | 1633 (64.3) | — | — | — | — | — | — |
| | 7.50x16(a) | 1669 (65.7) | 1633 (64.3) | — | — | — | — | — | — |

(a) Not Available On All GVWR

(b) 14.6° With Flareside

(c) 12.7° With Chassis Cab

Chassis — Suspension — Front

TREAD WIDTH/GROUND CLEARANCE — CONT'D

E-150-350

| Model | Tire Size | Tread Width | | Ground Clearance | | | | | |
|------------------|-------------------------|-------------|-------|------------------|---|--------------|---------|-------------------|---------|
| | | | | Approach Angle G | | Ramp Angle H | | Departure Angle J | |
| | | Front | Rear | D | E | 124" WB | 138" WB | 124" WB | 138" WB |
| E-250 Clubwagon | 8.75x16.5 8.75Rx16.5 | 68.44 | 66.00 | 45.0° | | 20.7° | | 19.6° | |
| E-250 Superwagon | 9.50Rx16.5 | 68.44 | 66.00 | | | | | | |
| E-350 Van | 9.50Rx16.5 9.50x16.5 | 68.44 | 66.00 | 45.0° | | 23.1° | | 23.6° | |
| E-350 Supervan | 9.50Rx16.5 9.50x16.5 | 68.44 | 66.00 | | | | | | |
| E-350 Superwagon | 9.50Rx16.5 9.50x16.5 | 68.44 | 66.00 | 44.7° | | 22.1° | | 15.3° | |

Chassis — Suspension — Front

TREAD WIDTH/GROUND CLEARANCE — CONT'D

E-150-350 — Cont'd

| Model | Tire Size | Tread Width | | Ground Clearance | | | | | | Departure Angle J | | | |
|--|---|-------------|-------|------------------|-------|---------|--------------|---------|---------|-------------------|---------|---------|---------|
| | | | | Approach Angle G | | | Ramp Angle H | | | | | | |
| | | Front | Rear | D | E | 138" WB | 158" WB | 176" WB | 138" WB | 158" WB | 176" WB | 138" WB | 158" WB |
| E-350 RV Cutaways (S.R.) | 9.50Rx 16.5 9.50x 16.5 | 68.44 | 66.00 | 45.0° | — | — | 23.1° | — | — | 13.6° | — | — | — |
| E-350 Cutaway (D.R.) | 8.75x 16.5 | 68.44 | 73.22 | 44.7° | 44.7° | 43.6° | 22.9° | 20.4° | 17.2° | 13.5° | 13.7° | 17.9° | — |
| E-350 Commercial Cutaway (S.R.) | 9.50Rx 16.5 9.50x 16.5 | 68.44 | 66.00 | 45.0° | — | — | 23.1° | — | — | 13.6° | — | — | — |
| E-350 Commercial Cutaway (D.R.) | 8.00x 16.5 8.75x 16.5 | 68.44 | 73.22 | 42.3° | 42.4° | 43.6° | 21.6° | 19.1° | 17.2° | 12.8° | 12.7° | 17.7° | — |
| E-350 Commercial Stripped Chassis (S.R.) | 7.50x 16 9.50x 16.5 9.50x 16.5 | 68.44 | 66.00 | 46.6° | 46.7° | 46.7° | 23.3° | — | 18.3° | 13.9° | 13.8° | 18.8° | — |
| E-350 Commercial Stripped Chassis (D.R.) | 7.50x 16 | 68.44 | 73.22 | 44.1° | 44.2° | 44.2° | 22.3° | 19.5° | 19.2° | 13.8° | 13.7° | 19.5° | — |
| E-350 P.D.V. (S.R.) | 9.50Rx 16.5 9.50x 16.5 | 68.44 | 66.00 | 45.0° | — | — | 22.2° | — | — | 11.5° | — | — | — |
| E-350 P.D.V. (D.R.) | 8.00x 16.5 8.75x 16.5E | 68.44 | 73.22 | 43.5° | 43.6° | — | 21.4° | 19.1° | — | 11.3° | 11.2° | — | — |

Chassis — Suspension — Front

TREAD WIDTH/GROUND CLEARANCE — CONT'D

F-150-350

| Model | Tire Size | Tread Width | | Ground Clearance | | | | | |
|---|--------------|----------------|----------------|------------------|-------|------------|-------|-----------------|----------|
| | | | | P | | S | | T | |
| | | FW | RW | Approach Angle | | Ramp Angle | | Departure Angle | |
| Front | Rear | SWB | LWB | SWB | LWB | SWB | LWB | SWB | LWB |
| F-350 4x4 Reg. & Chassis Cab 3378(133) | LT235/85Rx16 | 1699 (66.9) | 1633 (64.3) | — | 40.4° | — | 24.2° | — | 27.1°(a) |
| F-350 4x2 Crew Cab 4278(168.4) | LT235/85Rx16 | 1669 (65.7) | 1633 (64.3) | — | 38.0° | — | 18.0° | — | 24.0° |
| F-350 4x4 Crew Cab 4278(168.4) | LT235/85Rx16 | 1699 (66.9) | 1633 (64.3) | — | 40.6° | — | 21.2° | — | 26.2° |

(a) 18.0° With Chassis Cab

E-150-350

| Model | Tire Size | Tread Width | | Ground Clearance | | | | | |
|---------------------|--------------------------------------|-------------------------|-------------------------|------------------|-------|------------|-------|-----------------|-------|
| | | | | Approach Angle | | Ramp Angle | | Departure Angle | |
| | | Front | Rear | G | H | J | K | L | M |
| D | E | 124" | 138" | 124" | 138" | 124" | 138" | 124" | 138" |
| E-150 Van | P225/75R-15SL P235/75R-15XL | 69.44 69.44 | 67.00 67.00 | 35.6° | 35.6° | 16.8° | 15.1° | 20.2° | 17.2° |
| E-150 SuperVan | P235/75R-15XL | 69.44 | 67.00 | — | 36.4° | — | 15.0° | — | 12.1° |
| E-150 Club Wagon | P225/75R-15SL(a) P235/75R-15XL | 69.44 69.44 | 67.00 67.00 | 35.4° | 35.4° | 16.2° | 14.5° | 16.0° | 16.2° |
| | | | | 138" WB | | 138" WB | | 138" WB | |
| E-250 Van | 8.00x16.5 8.75x16.5 8.75Rx16.5 | 68.44 68.44 68.44 | 66.43 66.43 66.43 | 42.6° | | 18.5° | | 21.2° | |
| E-250 SuperVan | 8.75x16.5 | 68.44 | 66.00 | 45.0° | | 19.9° | | 15.4° | |

(a) Not available on all GVWR

Chassis — Suspension — Rear

REAR SPRINGS/SHOCK ABSORBERS USAGE — ALL VEHICLES

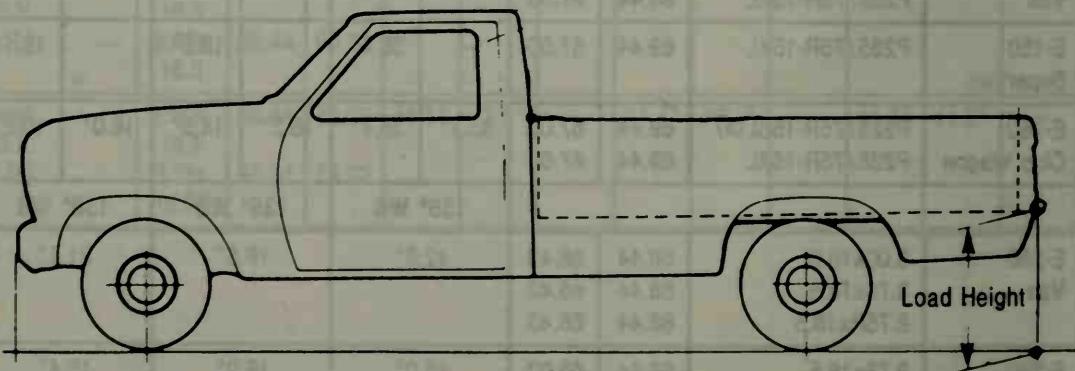
| Vehicle | Springs | Shock Absorbers (1) |
|---|----------------------------------|---------------------|
| Ranger | Leaf, 2 Stage Constant Rate | 1 inch |
| Bronco E-150 | Leaf, Single Stage Constant Rate | 1 inch |
| F-150 (4x2) Regular Cab | Leaf, Single Stage Constant Rate | 1 inch |
| F-150 (4x2) SuperCab F-150 (4x4) | Leaf, 2 Stage Variable Rate | 1 inch |
| F-250 | Leaf, 2 Stage Variable Rate | 1 inch |
| F-250 HD (4x2) F-350 (4x2) Chassis and Crew Cabs | Leaf, Single Stage Constant Rate | Optional |
| F-350 (4x2) Regular Pickup F-250 HD (4x4), F-350 (4x4) | Leaf, 2 Stage Variable Rate | Optional |
| E-250-350 Vans E-350 Parcel Delivery Van | Leaf, 2 Stage Variable Rate | 1.38" |
| E-250 Wagons E-350 Super Wagon | Leaf, Single Stage Constant Rate | 1.38" |

(1) All shock absorbers are the direct, double acting type.

LOAD HEIGHTS

Ranger

| Wheelbase | Load Height (in.) | |
|-----------|-------------------|--------|
| | Empty | Loaded |
| 113.9 | 21.06 | 14.46 |



Chassis — Suspension — Rear

LOAD HEIGHTS — CONT'D

F-150-350

| Vehicle | Body Style | Wheelbase | Load Height | |
|----------------------------|------------|-----------|-------------|----------|
| | | | Empty | Loaded |
| F-150 (4x2) Regular Cab | Styleside | 116.8 | 29.3 | 24.4 |
| | | 133 | 28.9 | 24.4 |
| | Flareside | 116.8 | 30.1 | 26.2 |
| | Styleside | 138.8 | 30.6 | 25.4 |
| SuperCab | | 155 | 30.3 | 25.4 |
| F-150 (4x4) Regular Cab | Styleside | 116.8 | 32.6 | 27.0 |
| | | 133 | 32.5 | 26.9 |
| | Flareside | 116.8 | 33.5 | 28.8 |
| | Styleside | 155 | 32.1 | 26.9 |
| F-250 (4x2) Regular Cab | Styleside | 133 | 33.9 | 28.5 |
| | Chassis | 133 | 27.6 (1) | 21.0 (1) |
| | Styleside | 155 | 33.3 | 27.4 |
| | Styleside | 133 | 33.9 | 28.5 |
| F-250 (4x4) Regular Cab | | 133 | 27.6 (1) | 21.0 (1) |
| Styleside | 155 | 34.2 | 29.1 | |

(1) Frame Height.

Chassis — Suspension — Rear

LOAD HEIGHTS — CONT'D

F-150-350

| Vehicle | Body Style | Wheelbase | Load Height | |
|--------------------------------|------------|-----------|-------------|----------|
| | | | Empty | Loaded |
| F-250 HD (4x2) Regular Cab | Styleside | 133 | 31.6 | 27.0 |
| | | 133 | 24.3 (1) | 19.3 (1) |
| | | 136.8 | 23.9 (1) | 20.0 (1) |
| | | 160.8 | 23.8 | 20.0 (1) |
| SuperCab | Styleside | 155 | 31.4 | 27.1 |
| F-250 HD (4x4) Regular Cab | Styleside | 133 | 34.6 | 28.7 |
| F-350 SRW (4x2) Regular Cab | Styleside | 133 | 31.7 | 27.1 |
| F-350 DRW (4x2) Regular Cab | Styleside | 133 | 30.7 | 26.5 |
| F-350 (4x2) Crew Cab | Styleside | 168.4 | 32.4 | 27.1 |
| F-350 (4x2) SRW Regular Cab | Chassis | 136.8 | 24.0 (1) | 20.0 (1) |
| F-350 DRW (4x2) Regular Cab | Chassis | 136.8 | 23.6 (1) | 19.5 (1) |
| F-350 (4x4) Regular Cab | Styleside | 133 | 33.3 | 28.8 |
| F-350 (4x4) Crew Cab | Styleside | 168.4 | 34.2 | 28.9 |
| F-350 (4x4) Regular Cab | Chassis | 133 | 26.0 (1) | 21.1 (1) |

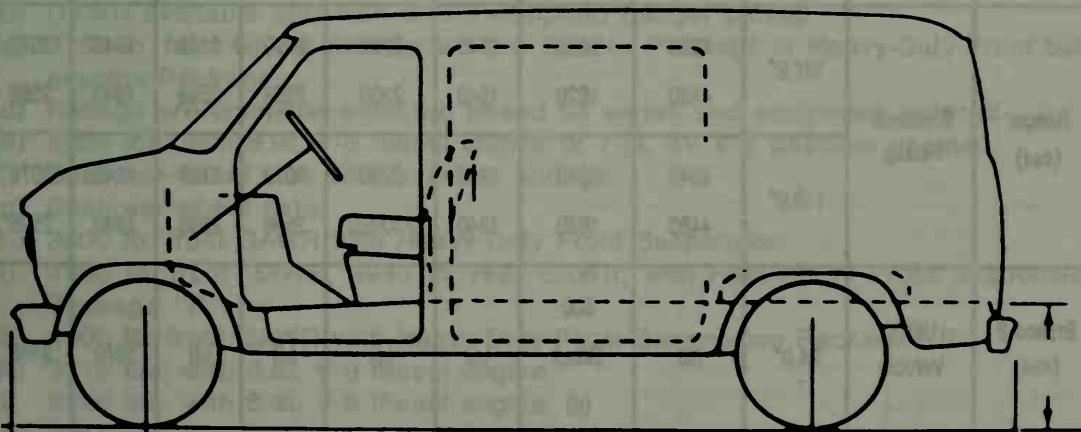
(1) Frame Height.

Chassis — Suspension — Rear

LOAD HEIGHTS — CONT'D

E-150-350

| Vehicle | Series | Wheelbase | Load Height | |
|---------|-------------|-----------|-------------|--------|
| | | | Empty | Loaded |
| E-150 | Regular Van | 124 | 27.5 | 21.8 |
| | | 138 | 27.1 | 21.8 |
| | Club Wagon | 124 | 27.1 | 21.8 |
| | | 138 | 27.2 | 21.8 |
| | Super Van | 138 | 26.9 | 23.0 |
| E-250 | Regular Van | 138 | 29.1 | 24.7 |
| | Club Wagon | 138 | 28.4 | 23.5 |
| | Super Van | 138 | 29.5 | 25.5 |
| | Super Wagon | 138 | 29.1 | 23.5 |
| E-350 | Regular Van | 138 | 32.2 | 26.8 |
| | Super Van | 138 | 32.6 | 27.0 |
| | Super Wagon | 138 | 31.4 | 25.9 |



Chassis — Suspension — Rear

GROSS AXLE WEIGHT RATINGS — ALL VEHICLES

| Model & Series | Body Type | Wheel-base | GVWR (Gross Vehicle Weight Rating) | Payload Rating | GAWR (Gross Axle Weight Rating) | | | | Springs (Combined Rating at Ground)(a) | |
|--------------------|------------------|------------|---------------------------------------|----------------|------------------------------------|---------|------|------|---|------|
| | | | | | Front | | Rear | | Front | Rear |
| | | | | | Min. | Max. | Min. | Max. | | |
| Ranger (4x2) | Styleside Pickup | 107.9" | 3780 | 1235 | 1835 | 2200 | 2040 | 2172 | 1835 | 2040 |
| | | | 4220 | 1610 | 1835 | 2200 | 2544 | 2544 | 1835 | 2582 |
| | | | 4380 | 1760 | 1835 | 2200 | 2700 | 2700 | 1835 | 2837 |
| | | | 4000(b) | 1220 | 1910 | 2200 | 2040 | 2172 | 1910 | 2040 |
| | | | 4440(b) | 1615 | 1910 | 2200 | 2544 | 2544 | 1910 | 2580 |
| | | 113.9" | 3800 | 1220 | 1835 | 2200 | 2040 | 2172 | 1835 | 2040 |
| | | | 4260 | 1620 | 1835 | 2200 | 2544 | 2544 | 1835 | 2582 |
| | | | 4420 | 1770 | 1835 | 2200 | 2700 | 2700 | 1835 | 2837 |
| | | | 4060(b) | 1220 | 1910 | 2200 | 2040 | 2172 | 1910 | 2040 |
| | | | 4500(b) | 1620 | 1910 | 2200 | 2544 | 2544 | 1910 | 2582 |
| Ranger (4x4) | Chassis Cab | 113.9" | 4260 | 1760 | 1835 | 2200 | 2544 | 2544 | 1835 | 2582 |
| | | | 4420 | 1910 | 1835 | 2200 | 2700 | 2700 | 1835 | 2837 |
| | | 107.9" | 4880 | 2225 | 2200 | 2200 | 3006 | 3006 | 2230 | 3100 |
| | | | 4040 | 1210 | 1940 | 2250 | 2070 | 2196 | 1940 | 2070 |
| Bronco II (4x4) | Utility Vehicle | 94.0" | 4480 | 1620 | 1940 | 2300(c) | 2598 | 2598 | 1940 | 2598 |
| | | | 600 | (d) | (d) | (d) | (d) | (d) | 1970 | 2165 |
| | | (d) | (Min.) | (d) | (d) | (d) | (d) | (d) | | |
| | | | (d) | | | | | | | |

Chassis — Suspension — Rear

GROSS AXLE WEIGHT RATINGS — ALL VEHICLES — CONT'D

| Model & Series | Body Type | Wheel-base | GVWR (Gross Vehicle Weight Rating) | Payload Rating | GAWR (Gross Axle Weight Rating) | | | | Springs (Combined Rating at Ground)(a) | |
|----------------|---------------------------------|------------|---------------------------------------|----------------|------------------------------------|------|------|------|---|------|
| | | | | | Front | | Rear | | Front | Rear |
| | | | | | Min. | Max. | Min. | Max. | | |
| F-150 (4x2) | Flareside Pickup | 116.8" | 4800 | 1395 | 2300 | 2684 | 2519 | 2684 | 2300 | 2519 |
| | | | 5250 | 1825 | 2300 | 2950 | 2886 | 3166 | 2300 | 2886 |
| | | 116.8" | 4800 | 1410 | 2300 | 2684 | 2519 | 2684 | 2300 | 2519 |
| | | | 5250 | 1835 | 2300 | 2950 | 2886 | 3166 | 2300 | 2886 |
| | Styleside | 133.0" | 4900 | 1400 | 2500 | 2684 | 2684 | 2684 | 2500 | 2878 |
| | | | 5450 | 1925 | 2500 | 3100 | 2886 | 3166 | 2500 | 2886 |
| | | 138.8" | 6100 | 2510 | 2500 | 3100 | 3750 | 3750 | 2500 | 3774 |
| | | | 6050 | 2285 | 2575 | 3375 | 3750 | 3750 | 2575 | 3775 |
| | SuperCab Styleside Pickup | 155.0" | 6250 | 2375 | 2575 | 3400 | 3750 | 3750 | 2575 | 3775 |

- (a) Ratings shown are for standard springs or springs that are included in the Payload Package for the specified GVWR, as appropriate. Higher-rated springs may be computer-selected for individual vehicles if equipped with certain options.
- (b) GVWR available only with diesel-equipped Ranger pickup.
- (c) 2750 lb. front GAWR with Snow Plow Special Package or Heavy-Duty Front Suspension Package.
- (d) Ratings are computer-selected based on series and equipment ordered.
- (e) 5864 lbs. with 6.9L V-8 diesel engine or 7.5L 4V V-8 gasoline engine.
- (f) Dual-rear-wheel axle with auxiliary springs.
- (g) Dual-rear-wheel axle.
- (h) 3800 lb. front GAWR with Heavy-Duty Front Suspension.
- (i) 4600 lb. front GAWR, 3943 lb. rear GAWR, with Heavy-Duty Front Suspension Package "B".
- (j) 4600 lb. front GAWR with Heavy-Duty Front Suspension Package "B".
- (k) 3215 lbs. with 6.9L V-8 diesel engine.
- (l) 3290 lbs. with 6.9L V-8 diesel engine.
- (m) DSO.

Chassis — Suspension — Rear

GROSS AXLE WEIGHT RATINGS — ALL VEHICLES — CONT'D

| Model & Series | Body Type | Wheel-base | GVWR (Gross Vehicle Weight Rating) | Payload Rating | GAWR (Gross Axle Weight Rating) | | | | Springs (Combined Rating at Ground)(a) | |
|-------------------|---------------------------|------------|---------------------------------------|----------------|------------------------------------|------|-----------|-----------|---|-----------|
| | | | | | Front | | Rear | | Front | Rear |
| | | | | | Min. | Max. | Min. | Max. | | |
| F-250 (4x2) | Styleside Pickup | 133.0" | 6300 | 2630 | 2570 | 3320 | 3880 | 3880 | 2570 | 3935 |
| | | | 7300 | 3480 | 2570 | 3320 | 5246 | 5246 | 2570 | 5262 |
| | | | 7800 | 3980 | 2570 | 3320 | 5246 | 5246 | 2570 | 5525 |
| | Chassis Cab | 133.0" | 6500 | 3070 | 2570 | 3320 | 3986 | 3986 | 2570 | 3986 |
| F-250 HD (4x2) | Styleside Pickup | 133.0" | 7300 | 3770 | 2570 | 3320 | 5246 | 5246 | 2570 | 5525 |
| | | | 8600 | 4630 | 2765(k) | 4000 | 6084 | 6084 | 2765(k) | 6318(e) |
| | Chassis Cab | 133.0" | 8600 | 5005 | 2765(k) | 4000 | 6084 | 6084 | 2765(k) | 6318(e) |
| | | | 8600 | 4860 | 2915(k) | 4000 | 6084 | 6084 | 2915(k) | 6385 |
| | SuperCab Styleside Pickup | 136.8" | 9000 | 5130 | 3065(k) | 4000 | 6084 | 6084 | 3065(k) | 6385 |
| F-350 (4x2) | Styleside Pickup | 155.0" | 8800 | 4520 | 2840(l) | 4000 | 6084 | 6084 | 2840(l) | 6318(e) |
| | | | 10,000(g) | 5680 | 2765(k) | 4000 | 6084 | 6084 | 2765(k) | 6318 |
| | Chassis Cab | 160.8" | 8700 | 4670 | 2765(k) | 4000 | 6084 | 6084 | 2765(k) | 6318 |
| | | | 10,000(g) | 5680 | 2765(k) | 4000 | 7400(g) | 7400(g) | 2765(k) | 7975(g) |
| | Crew Cab Styleside Pickup | 168.4" | 8900(g) | 5100 | 2915(k) | 4000 | 6084(g) | 6084(g) | 2915(k) | 6385(g) |
| | | | 10,000(g) | 6070 | 3065(k) | 4000 | 7335(g) | 7335(g) | 3065(k) | 7335(g) |
| F-150 (4x4) | Flareside Pickup | 116.8" | 11,000(f,g) | 6960 | 3065(k) | 4000 | 8200(f,g) | 8200(f,g) | 3065(k) | 8480(f,g) |
| | | | 11,000(f,g) | 6960 | 3065(k) | 4000 | 8200(f,g) | 8200(f,g) | 3065(k) | 8480(f,g) |
| | Styleside Pickup | 133.0" | 10,000(g) | 5940 | 3065(k) | 4000 | 7056(g) | 7056(g) | 3065(k) | 7335(g) |
| | | | 11,000(f,g) | 6850 | 3215 | 4000 | 8200(f,g) | 8200(f,g) | 3215 | 8480(f) |
| | SuperCab Styleside Pickup | 168.4" | 8700 | 4145 | 3215 | 4000 | 5688 | 5688 | 3215 | 5864 |
| | | | 9200 | 4610 | 3215 | 4000 | 6084 | 6084 | 3215 | 7312 |

Chassis — Suspension — Rear

GROSS AXLE WEIGHT RATINGS — ALL VEHICLES — CONT'D

| Model & Series | Body Type | Wheel-base | GVWR (Gross Vehicle Weight Rating) | Payload Rating | GAWR (Gross Axle Weight Rating) | | | | Springs (Combined Rating at Ground)(a) | |
|----------------|---------------------------|------------|---------------------------------------|----------------------|------------------------------------|---------|------|---------|---|------|
| | | | | | Front | | Rear | | Front | Rear |
| | | | | | Min. | Max. | Min. | Max. | | |
| F-250 (4x4) | Styleside Pickup | 133.0" | 6600 | 2485 | 3305 | 3800(i) | 3880 | 3880(i) | 3305 | 3943 |
| F-250 HD (4x4) | Styleside Pickup | 133.0" | 8600 | 4230 | 3305 | 3850(k) | 5873 | 5873 | 3305 | 5873 |
| | Chassis Cab | 133.0" | 8600 | 4605 | 3305 | 3850(k) | 5873 | 5873 | 3305 | 5873 |
| | SuperCab Styleside Pickup | 155.0" | 8600 | 3870 | 3920 | 4410 | 5873 | 5873 | 3920 | 5873 |
| F-350 (4x4) | Styleside Pickup | 133.0" | 9000 | 4580 | 3375 | 3920(k) | 6084 | 6084 | 3375 | 6327 |
| | Chassis Cab | 133.0" | 9000 | 4950 | 3375 | 3920(k) | 6084 | 6084 | 3375 | 6327 |
| | Crew Cab Styleside Pickup | 168.4" | 9300 | 4350 | 3920 | 4410(j) | 5873 | 5873 | 3920 | 5873 |
| Bronco (4x4) | Utility Vehicle | 104.7" | (d) | 850 (Min.) (d) | (d) | (d) | (d) | (d) | 2450 | 3218 |

- (a) Ratings shown are for standard springs or springs that are included in the Payload Package for the specified GVWR, as appropriate. Higher-rated springs may be computer-selected for individual vehicles if equipped with certain options.
- (b) GVWR available only with diesel-equipped Ranger pickup.
- (c) 2750 lb. front GAWR with Snow Plow Special Package or Heavy-Duty Front Suspension Package.
- (d) Ratings are computer-selected based on series and equipment ordered.
- (e) 5864 lbs. with 6.9L V-8 diesel engine or 7.5L 4V V-8 gasoline engine.
- (f) Dual-rear-wheel axle with auxiliary springs.
- (g) Dual-rear-wheel axle.
- (h) 3800 lb. front GAWR with Heavy-Duty Front Suspension.
- (i) 4600 lb. front GAWR, 3943 lb. rear GAWR, with Heavy-Duty Front Suspension Package "B".
- (j) 4600 lb. front GAWR with Heavy-Duty Front Suspension Package "B".
- (k) 3215 lbs. with 6.9L V-8 diesel engine.
- (l) 3290 lbs. with 6.9L V-8 diesel engine.
- (m) DSO.

Chassis — Suspension — Rear

GROSS AXLE WEIGHT RATINGS — ALL VEHICLES — CONT'D

| Model & Series | Body Type | Wheel-base | GVWR (Gross Vehicle Weight Rating) | Payload Rating | GAWR (Gross Axle Weight Rating) | | | | Springs (Combined Rating at Ground)(a) | |
|----------------|---------------------|------------|---------------------------------------|----------------|------------------------------------|------|---------|---------|---|------|
| | | | | | Front | | Rear | | Front | Rear |
| | | | | | Min. | Max. | Min. | Max. | | |
| E-150 | Van | 124.0" | 5250 | 1530 | 2570 | 3150 | 2860 | 2860 | 2570 | 2860 |
| | | | 5950 | 2205 | 2570 | 3400 | 3406 | 3406 | 2570 | 3770 |
| | | | 6350 | 2580 | 2720 | 3400 | 3750 | 3750 | 2720 | 3770 |
| | | 138.0" | 5250 | 1350 | 2570 | 3150 | 2860 | 2860 | 2570 | 2860 |
| | Club Wagon | 138.0" | 5900 | 2000 | 2570 | 3400 | 3406 | 3406 | 2570 | 3770 |
| | | 138.0" | 6300 | 2375 | 2570 | 3400 | 3750 | 3750 | 2570 | 3770 |
| | | SuperVan | 138.0" | 6050 | 2010 | 2570 | 3400 | 3750 | 3750 | 2570 |
| | Club Wagon | 124.0" | (d) | (d) | (d) | (d) | (d) | (d) | 2720 | 3770 |
| | | 138.0" | (d) | (d) | (d) | (d) | (d) | (d) | 2720 | 3770 |
| E-250 | Van | 138.0" | 6800 | 2650 | 2950 | 3680 | 4050 | 4050 | 2950 | 4185 |
| | | | 7500 | 3250 | 2950 | 3700 | 4700 | 4700 | 2950 | 4765 |
| | SuperVan | 138.0" | 7900 | 3425 | 2950 | 3700 | 5300 | 5300 | 2950 | 5475 |
| | Club Wagon | 138.0" | (d) | (d) | (d) | (d) | (d) | (d) | 3250 | 5305 |
| E-350 | Super Wagon | 138.0" | (d) | (d) | (d) | (d) | (d) | (d) | 2950 | 6350 |
| | Van | 138.0" | 8750 | 4305 | 3100 | 4200 | 6340 | 6340 | 3100 | 6550 |
| | | | 9500 | 5015 | 3250 | 4200 | 6340 | 6340 | 3250 | 6550 |
| | SuperVan | 138.0" | 9100 | 4485 | 2950 | 4200 | 6340 | 6340 | 2950 | 6540 |
| | Super Wagon | 138.0" | (d) | (d) | (d) | (d) | (d) | (d) | 2950 | 6350 |
| | Parcel Delivery Van | 138.0" | 8750 | 3355 | 2950 | 4060 | 6340 | 6340 | 2950 | 6550 |
| | | | 9700(g) | 3935 | 2950 | 3700 | 7300(g) | 7300(g) | 2950 | 7300 |
| | RV Cutaway | 158.0" | 10,000(g) | 3960 | 2950 | 4090 | 7200(g) | 7200(g) | 2950 | 7270 |
| | | 138.0" | 9750 | 5755 | 3550 | 4200 | 6340 | 6340 | 3550 | 6550 |
| | | | 10,250(g) | 6070 | 3100 | 4150 | 7400 | 7400 | 3100 | 7400 |
| | | 158.0" | 10,250(g) | 5950 | 3250 | 4150 | 7400 | 7400 | 3250 | 7400 |
| | | | 11,000(g) | 6415 | 3850 | 4150 | 7400 | 7400 | 3850 | 7400 |
| | | 176.0" | 11,000(g) | 6450 | 3850 | 4150 | 7400 | 7400 | 3850 | 7400 |

Chassis — Suspension — Rear

GROSS AXLE WEIGHT RATINGS — ALL VEHICLES — CONT'D

| Model & Series | Body Type | Wheel-base | GVWR (Gross Vehicle Weight Rating) | Payload Rating | GAWR (Gross Axle Weight Rating) | | | | Springs (Combined Rating at Ground)(a) | |
|-----------------|--------------------------------|------------|---------------------------------------|----------------|------------------------------------|------|---------|---------|---|---------|
| | | | | | Front | | Rear | | Front | Rear |
| | | | | | Min. | Max. | Min. | Max. | | |
| E-350 Cont'd | Commercial Cutaway | 138.0" | 8950 | 5135 | 2950 | 4200 | 6340 | 6340 | 2950 | 6550 |
| | | | 9800(g) | 5805 | 2950 | 3680 | 7200 | 7200 | 2950 | 7300 |
| | | | 10,000(g) | 6005 | 2950 | 3890 | 7200 | 7200 | 2950 | 7300 |
| | | | 10,250(g,m) | 6190 | 3700 | 3700 | 7300 | 7300 | 3700 | 7300 |
| | | 158.0" | 9700(g) | 5600 | 3100 | 4090 | 6700 | 6700 | 3100 | 6700 |
| | | | 10,250(g,m) | 5905 | 3700 | 3700 | 7300 | 7300 | 3700 | 7300 |
| | | | 10,900(g,m) | 6335 | 3700 | 3700 | 7300 | 7300 | 3700 | 7300 |
| | Commercial Stripped Chassis(m) | 176.0" | 10,600(g,m) | 6335 | 3700 | 3700 | 7300 | 7300 | 4200 | 7300 |
| | | 138.0" | 9550 | 6380 | 3250 | 3400 | 6340 | 6340 | 3250 | 6550 |
| | | 158.0" | 9550 | 6290 | 3250 | 3400 | 6340 | 6340 | 3250 | 6550 |
| | | | 10,000(g) | 6520 | 3550 | 3550 | 7300(g) | 7300(g) | 3550 | 7300(g) |

- (a) Ratings shown are for standard springs or springs that are included in the Payload Package for the specified GVWR, as appropriate. Higher-rated springs may be computer-selected for individual vehicles if equipped with certain options.
- (b) GVWR available only with diesel-equipped Ranger pickup.
- (c) 2750 lb. front GAWR with Snow Plow Special Package or Heavy-Duty Front Suspension Package.
- (d) Ratings are computer-selected based on series and equipment ordered.
- (e) 5864 lbs. with 6.9L V-8 diesel engine or 7.5L 4V V-8 gasoline engine.
- (f) Dual-rear-wheel axle with auxiliary springs.
- (g) Dual-rear-wheel axle.
- (h) 3800 lb. front GAWR with Heavy-Duty Front Suspension.
- (i) 4600 lb. front GAWR, 3943 lb. rear GAWR, with Heavy-Duty Front Suspension Package "B".
- (j) 4600 lb. front GAWR with Heavy-Duty Front Suspension Package "B".
- (k) 3215 lbs. with 6.9L V-8 diesel engine.
- (l) 3290 lbs. with 6.9L V-8 diesel engine.
- (m) DSO.

Chassis — Suspension — Rear

TORQUE SPECIFICATIONS

Ranger

| Description | Torque | |
|--|---------|---------|
| | N·m | Ft-Lb |
| Rear Leaf Spring U-Bolt to Plate Nut | 88-102 | 65-75 |
| Rear Shock Absorber to Lower Bracket Nut | 54-82 | 40-60 |
| Rear Shock Absorber to Upper Bracket Nut | 54-82 | 40-60 |
| Rear Shackle to Spring Nut | 136-210 | 100-155 |
| Rear Spring to Frame Nut | 136-210 | 100-155 |
| Rear Spring to Front Bracket Nut | 102-155 | 75-115 |
| Rear Spring Shackle to Rear Bracket Nut | 136-210 | 100-155 |
| Stabilizer Bar to Mounting Bracket | 40-57 | 30-42 |
| Stabilizer Link to Bar and Frame | 54-82 | 40-60 |

E-, F-150-350, Bronco

| Description | Application | Torque Range | |
|--|---|--------------------|-------------------|
| | | N·m | Ft-Lb |
| Jounce Bumper to Frame Nut | All | 25-40 | 19-30 |
| Leaf Spring to Axle U-Bolt Nut | All except F-250 — F-350 (4x2) Chassis Cab F-250 — F-350 (4x2) Chassis Cab | 100-155 200-280 | 75-115 150-210 |
| Leaf Spring to Front Bracket Nut and Bolt | All Except F-150 (4x2) F-150 (4x2) | 200-280 100-155 | 150-210 75-115 |
| Leaf Spring to Rear Shackle Nut and Bolt | All except F-250 — F-350 (4x2) Chassis Cab F-250 — F-350 (4x2) Chassis Cab | 100-150 200-280 | 75-115 150-210 |
| Rear Shackle to Frame Nut and Bolt | All except F-250 — F-350 (4x2) Chassis Cab F-250 — F-350 (4x2) Chassis Cab | 100-150 200-280 | 75-115 150-210 |
| Shock Absorber (Lower Mount) to Axle Nut and Bolt | All | 55-85 | 40-64 |
| Shock Absorber (Upper Mount) to Frame Nut | All | 55-85 | 40-64 |
| Shock Absorber/Stabilizer Bar Bracket to Axle Nut | F-250 — F-350 (4x2) Chassis Cab | 40-57 | 30-42 |
| Stabilizer Bar to Axle Nut | All | 40-57 | 30-42 |
| Stabilizer Link Bracket to Frame Nut and Bolt | All 4x4 Vehicles | 27-41 | 20-30 |
| Stabilizer Link to Bracket Nut and Bolt | All 4x4 Vehicles | 54-82 | 40-60 |
| Stabilizer Link to Frame Nut and Bolt | All 4x2 Vehicles | 54-82 | 40-60 |
| Stabilizer Link to Stabilizer Bar Nut | All | 20-34 | 15-25 |

Chassis — Suspension — Rear

TORQUE SPECIFICATIONS — CONT'D

Torque Specifications — E-150 — E-250 — E-350

| Description | Application | Torque Range | |
|---|-------------------------|-------------------------------|-----------------------------|
| | | N·m | Ft-Lbs |
| Jounce Bumper to Frame Nut | E-150 E-250 — E-350 | 21-33 28-41 | 15-25 20-30 |
| Leaf Spring to Axle U-Bolt Nut | E-150 E-250 E-350 | 101-145 101-145 204-244 | 74-107 74-107 150-180 |
| Leaf Spring to Front Bracket Nut and Bolt | E-150 — E-250 — E-350 | 204-276 | 150-204 |
| Leaf Spring to Rear Shackle Nut and Bolt | E-150 — E-250 — E-350 | 101-145 | 74-107 |
| Rear Shackle to Frame Nut and Bolt | E-150 — E-250 — E-350 | 101-145 | 74-107 |
| Shock Absorber (Lower Mount) to Axle Nut and Bolt | E-150 — E-250 — E-350 | 55-81 | 40-60 |
| Shock Absorber (Upper Mount) to Frame Nut | E-150 — E-250 — E-350 | 25-37 | 18-28 |

Chassis — Drive Axles

IDENTIFICATION

Safety Compliance Certification Label — All Vehicles

MFD. BY FORD MOTOR CO. IN U.S.A.

DATE:

GVWR:

FRONT GAWR:

REAR GAWR:

WITH

TIRES

RIMS

WITH

TIRES

RIMS

AT PSI COLD

AT PSI COLD

THIS VEHICLE CONFORMS TO ALL APPLICABLE FEDERAL MOTOR VEHICLE SAFETY STANDARDS IN EFFECT ON THE DATE OF MANUFACTURE SHOWN ABOVE

Vehicle Identification No.

Type

2K 9A

EXTERIOR PAINT COLORS

DSO

WB

Type GVW

Body

Trans

Axle

108

L2NO

CARS

W

72

REAR AXLE CODE

Identification Tag — Ranger

DATE (YEAR, MONTH, DAY)

AXLE MODEL

WGY-D

5J18

RATIO (CONVENTIONAL)

3.00

9

S102A

TRACTION-LOK WOULD BE (3L00)

RING GEAR DIAMETER

PLANT CODING
S—STERLING
V—VAN DYKE

Identification Tags — E-, F-150-350, Bronco

RATIO

DANA AXLES

CUST. AXLE ASSEMBLY NO.

DANA PART NO.

000

0000-000

PREFIX LETTERS
SUFFIX LETTERS

INCLUDE ON LIMITED-SLIP
ASSEMBLIES ONLY

000000-00

L-S

DATE (YEAR, MONTH, DAY)

AXLE MODEL

WGY-A

5 J 18

FORD DESIGN AXLES

000

3.08

9

W157

PLANT CODING

RATIO (CONVENTIONAL)
TRACTION-LOK (3L08)

RING GEAR DIAMETER

- S — STEERING PLANT
- V — VAN DYKE PLANT

Chassis — Drive Axles

IDENTIFICATION — CONT'D

7.5 Inch Conventional Axle — Ranger

| Identification Tag | Ratio | Ring Gear Diameter (Inches) | Differential Type |
|--------------------|--------|-----------------------------|-------------------|
| WGX-AU | 3.45:1 | 7.5 | C2 |
| WGX-BV | 4.10:1 | 7.5 | T2 |
| WGX-AV | 3.73:1 | 7.5 | C2 |
| WGX-BK | 3.08:1 | 7.5 | C2 |

7.5 Inch Integral Carrier Traction-Lok Axle — Ranger

| Identification Tag | Ratio | Ring Gear Diameter (Inches) | Differential Type |
|--------------------|--------|-----------------------------|-------------------|
| WFC-BG | 4.10:1 | 7.5 | T2 |
| WFC-C | 3L45:1 | 7.5 | T2 |
| WFC-AD | 3L73:1 | 7.5 | T2 |

8.8 Inch Integral Carrier Conventional Axle — E-, F-150-350, Bronco

| Identification Tag | Ratio | Ring Gear Diameter (Inches) | Differential Type |
|--------------------|--------|-----------------------------|----------------------|
| WEC-A | 3.55:1 | 8.8 | C2 |
| WEC-B | 3.55:1 | 8.8 | C2 |
| WDR-G | 3.55:1 | 8.8 | C2 |
| WDR-A | 2.47:1 | 8.8 | C2 |
| WDR-C | 3.08:1 | 8.8 | C2 |
| WDR-D | 3.55:1 | 8.8 | C2 |
| WDR-E | 3.55:1 | 8.8 | C2 W/ 12 inch brakes |
| WDR-F | 3.08:1 | 8.8 | C2 |

8.8 Inch Integral Carrier Traction-Lok Axle — E-, F-150-250, Bronco

| Identification Tag | Ratio | Ring Gear Diameter (Inches) | Differential Type |
|--------------------|--------|-----------------------------|-------------------|
| WFL-B | 3L08:1 | 8.8 | T2 |
| WFL-C | 3L55:1 | 8.8 | T2 |
| WFL-F | 3L55:1 | 8.8 | T2* |

*Maximum .003 Pitchline Runout.

Ranger Chassis Cab Traction-Lok and Conventional 8.8" Integral Carrier

| Identification Tag | Ratio | Ring Gear Diameter (Inches) | Differential Type |
|--------------------|--------|-----------------------------|-------------------|
| WFL-H | 3.73:1 | 8.8 | T2 |
| WDR-G | 3.73:1 | 8.8 | C2 |

Chassis — Drive Axles

IDENTIFICATION — CONT'D

9 Inch Removable Carrier Conventional and Traction-Lok Axles — E-, F-150-250, Bronco

| Identification Tag | Ratio | Ring Gear Diameter (Inches) | Differential Type |
|---------------------------------|--------|---------------------------------|-------------------|
| WFT-AZ | 3.50:1 | 9 | T4 |
| WFT-V | 3.50:1 | 9 | T4 |
| WFT-U | 3.00:1 | 9 | T4 |
| WDM-BK | 3.50:1 | 9 | C2 |
| WDM-DL | 4.11:1 | 9 | C4 |
| WDM-DM | 3.00:1 | 9 | C4 |
| WEV-AJ | 3.00:1 | 9 | C4 |
| WEV-AV | 3.00:1 | 9 | C4 |
| WEV-AZ | 3.50:1 | 9 | C4 |
| Type C4 — Conventional 4-Pinion | | Type C2 — Conventional 2-Pinion | |
| Type T4 — Traction-Lok 4-Pinion | | | |

General Specifications — Rear Axles

| Truck Series | Ranger |
|------------------------------|---|
| Axle | Std. and Traction-Lok |
| Rating @ Ground (lbs.) | 2200 (Pickup); 2700 (Chassis Cab); 3200 (Chassis Cab) |
| Type | Semi-Floating |
| Drive | Hotchkiss |
| Housing — Type | Cast Center |
| — Cover Attachment | Bolted |
| Wheel Bearings — Type | Ball Bearing — Engaged Straight Roller |
| Type Gears | Hypoid |
| Material | Shot Peened Alloy Steel |
| Pinion — Mounting | Overhung |
| Differential — Type | 2-Pinion |
| Bearing | Tapered Roller |

Chassis — Drive Axles

GENERAL SPECIFICATIONS — REAR AXLE — CONT'D

| Truck Series | E-150 Ford 3750 | Bronco, F-150 Ford 3750 |
|--------------------------------|---------------------------------|-----------------------------------|
| Axle | Std. & Traction-Lok — 9 inch | Std. & Traction-Lok — 8.8 inch |
| Rating @ Ground — (lbs.) | 3750 | |
| Type | Semi-Floating | |
| Drive | | Hotchkiss |
| Housing — Type | Banjo | Cast Center |
| — Cover Attachment | Welded | Bolted |
| Wheel Bearings — Type | Tapered Roller | Straight Roller |
| Type Gears | | Hypoid |
| Material | | Shot Peened Alloy Steel |
| Pinion — Mounting | Straddle Mounted | Overhung |
| Differential — Type | 4-Pinion | 2-Pinion |
| Bearings | | Tapered Roller |

Chassis — Drive Axles

GENERAL SPECIFICATIONS — REAR AXLE — CONT'D

| Truck Series | F-250(3) | F-250(2) | F-250 HD/ F-350 SRW | F-350 4x2 DRW Pickup | F-350 4x2 DRW Chassis Cab | F-250 HD/ F-350 SRW |
|-------------------------|---|--|---|---|----------------------------------|---|
| Axle | Ford 4050 Conventional & Traction- Lok | Dana 60-3, 61-2 Conventional & Limited- Slip | Dana 70-2U Conventional & Limited- Slip(5) | Dana 70- 1HD Conventional & Limited- Slip | Dana 70 1U(7400) 1HD(8200) | Dana 61-1 Conventional & Limited- Slip |
| Rating @ Ground-(Lbs) | 4050 | 5300 | 6300 | 7400 | 7400/8200 | 6250 |
| Type | Semi-Floating | | | | Full-Floating | |
| Drive..... | | | | Hotchkiss | | |
| Housing—Type..... | | | | Cast Center | | |
| —Cover Attachment | | | | Bolted | | |
| Wheel Bearings-Type.... | Straight Roller | | | Tapered Roller | | |
| Type Gears | | | | Hypoid | | |
| Material | Shot Peened Alloy Steel | | | Alloy Steel | | |
| Pinion-Mounting | | | | Overhung | | |
| Differential—Type | 2-Pinion | | | 2-Pinion(1) | | |
| Bearings | | | | Tapered Roller | | |

(1) 4-Pinion for Limited-Slip.

(2) All except base GVWR.

(3) Base GVWR.

(4) With all 5.8L engines.

(5) All 6.9L/7.5L engines with M4 transmission and 3.54/4.10 ratios will include the Dana 70-2U full-floating axle. Also included with 6.9L V-8 diesel engine, automatic transmission and 3.54 or 4.10 axle ratios.

Chassis — Drive Axles

General Specifications — Rear Axle — Cont'd

| Truck Series | E-250(3) | E-250(2) | E-250/350 | E-350 |
|---------------------------|---|---|---|---|
| Axle | Ford 4050 Conventional & Traction-Lok | Dana 60-3, 61-2 Conventional & Limited-Slip | Dana 61-1 Conventional & Limited-Slip | Dana 70 Conventional & Limited-Slip |
| Rating @ Ground — (lbs.) | 4050 | 5300 | 6340 | 7400 |
| Type | Semi-Floating | | Full-Floating | |
| Drive | | Hotchkiss | | |
| Housing — Type | | Cast Center | | |
| — Cover Attachment | | Bolted | | |
| Wheel Bearings — Type ... | Straight Roller | | Tapered Roller | |
| Type Gears | | Hypoid | | |
| Material | Shot Peened Alloy Steel | | Alloy Steel | |
| Pinion — Mounting | | Overhung | | |
| Differential — Type | | 2-Pinion | | 2-Pinion(1) |
| Bearings | | Tapered Roller | | |

(1) 4-Pinion for Limited-Slip.

(2) Under 8500 lb. GVWR, except base GVWR.

(3) Base GVWR.

Chassis — Drive Axles

General Specifications — Front Axle — (4x4)

| Application | Ranger 4x4 | Std. Bronco & F-150 4x4 | Std. F-250 4x4 | Opt. F-250 HD 4x4(1) Std. F-350 4x4 | | |
|-------------------------------|------------------------|----------------------------|-------------------|---|--|--|
| Rating @ Ground — (lbs.) ... | 2750 | 3550 | 3800 | 4500 | | |
| Type | Full-Floating | | | | | |
| Springs | Coil | | Leaf | | | |
| Housing — Type | Unitized | | | | | |
| — Cover Attachment | Bolted | | | | | |
| Lubricant Capacity (pt.) | | | | | | |
| — Differential | 1.0 | 3.6 | 3.8 | 3.8 | | |
| Wheel Bearings — Type | Tapered Roller | | | | | |
| Gears — Type | Hypoid | | | | | |
| Ratios Available (to 1) | 3.08(a), 3.45, 3.73 | 3.07, 3.54 | 3.54, 4.09 | 3.54, 4.10 | | |
| Pinion — Mounting..... | Above Center | | | | | |
| Differential — Type | Two-Pinion | | | | | |
| Bearings | Tapered Roller | | | | | |

(1) Ranger 4x4 only.

(2) 4600 lbs. front axle available only as part of Snow Plow Special Pkgs. or HD Front Suspension Pkg. "B" on F-250 HD 4x4 over 8500 lbs. GVWR.

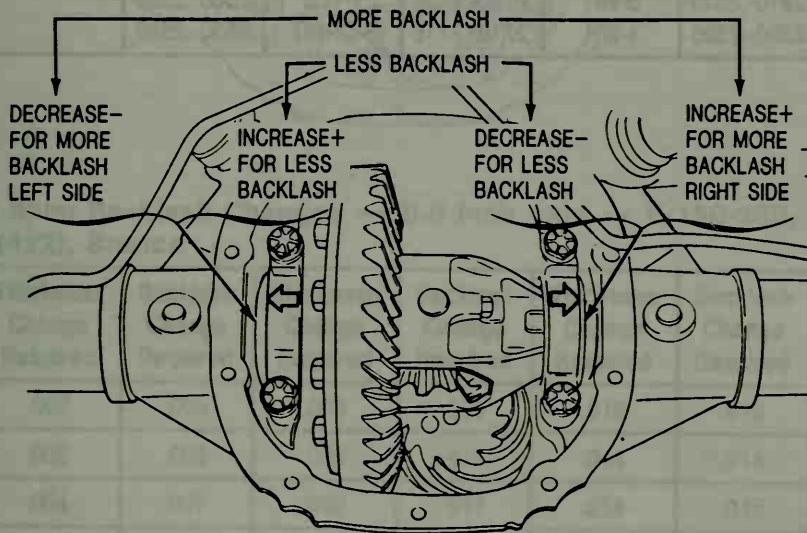
Chassis — Drive Axles

SERVICE SPECIFICATIONS

Differential Shim Backlash Changes and Thickness Codes — 7.5 Inch Axle — Ranger

Backlash Specifications

| Backlash Change Required (Inch) | Thickness Change Required (Inch) | Backlash Change Required (Inch) | Thickness Change Required (Inch) | Backlash Change Required (Inch) | Thickness Change Required (Inch) | Backlash Change Required (Inch) | Thickness Change Required Inch) |
|---------------------------------|----------------------------------|---------------------------------|----------------------------------|---------------------------------|----------------------------------|---------------------------------|---------------------------------|
| .001 | .002 | .005 | .006 | .009 | .012 | .013 | .018 |
| .002 | .002 | .006 | .008 | .010 | .014 | .014 | .018 |
| .003 | .004 | .007 | .010 | .011 | .014 | .015 | .020 |
| .004 | .006 | .008 | .010 | .012 | .016 | | |



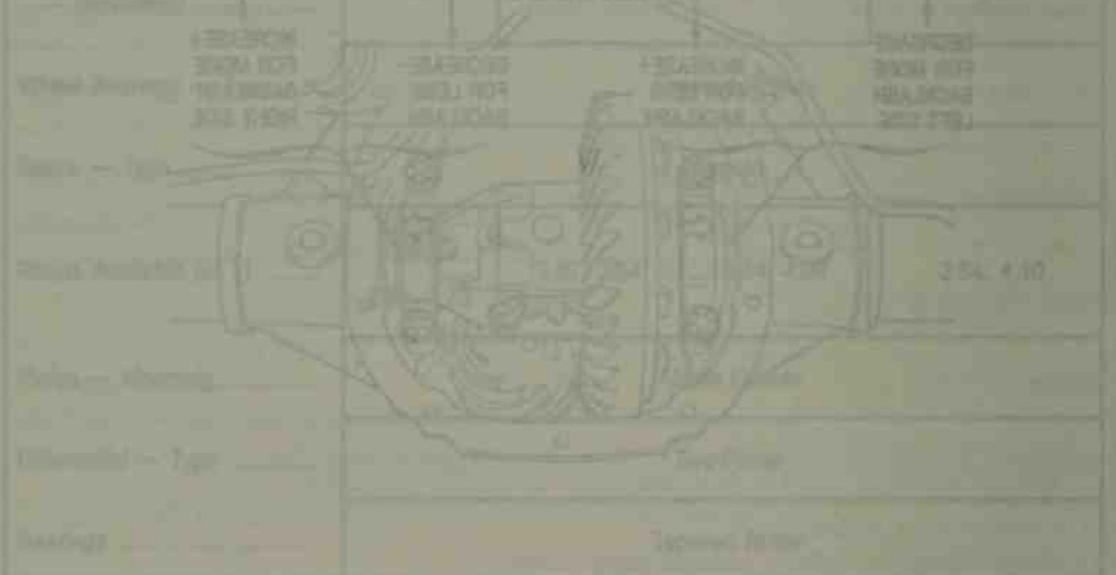
Chassis — Drive Axles

SERVICE SPECIFICATIONS — CONT'D

Differential Shim Backlash Changes and Thickness Codes — 7.5 Inch Axle — Ranger

Thickness Codes — 7.5 Inch Axle — Ranger

| Number of Stripes and Color Code | Dim. A | Number of Stripes and Color Code | Dim. A | Number of Stripes and Color Code | Dim. A | Number of Stripes and Color Code | Dim. A |
|----------------------------------|-------------|----------------------------------|-------------|----------------------------------|-------------|----------------------------------|-------------|
| 2-C-COAL | .3070-.3075 | 2-PINK | .2870-.2875 | 3-WH | .2690-.2695 | 4-ORNG | .2510-.2515 |
| 1-C-COAL | .3050-.3055 | 1-PINK | .2850-.2855 | 2-WH | .2670-.2675 | 3-ORNG | .2490-.2495 |
| 5-BLU | .3030-.3035 | 5-GRN | .2830-.2835 | 1-WH | .2650-.2655 | 2-ORNG | .2470-.2475 |
| 4-BLU | .3010-.3015 | 4-GRN | .2810-.2815 | 5-YEL | .2630-.2635 | 1-ORNG | .2450-.2455 |
| 3-BLU | .2990-.2995 | 3-GRN | .2790-.2795 | 4-YEL | .2610-.2615 | 2-RED | .2430-.2435 |
| 2-BLU | .2970-.2975 | 2-GRN | .2770-.2775 | 3-YEL | .2590-.2595 | 1-RED | .2410-.2415 |
| 5-PINK | .2930-.2935 | 1-GRN | .2750-.2755 | 2-YEL | .2570-.2575 | | |
| 4-PINK | .2910-.2915 | 5-WH | .2730-.2735 | 1-YEL | .2550-.2555 | | |
| 3-PINK | .2890-.2895 | 4-WH | .2710-.2715 | 5-ORNG | .2530-.2535 | | |

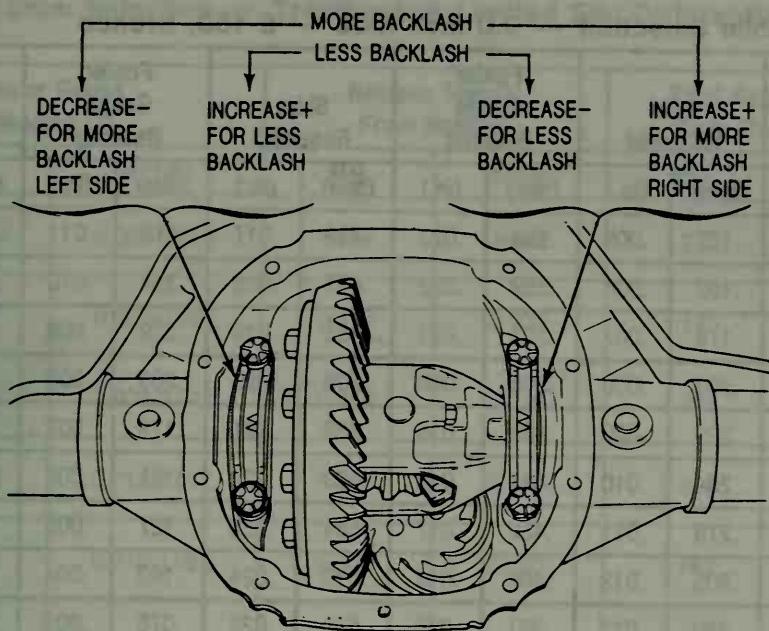


(1) Ranger and early

(2) 4000 lb. load axle available only as part of Super Plus Special Page or FG Front Suspension Page "B" on F-250 HD Medium 1000 lbs. GVWR.

Chassis — Drive Axles

SERVICE SPECIFICATIONS — CONT'D



Differential Shim Backlash Changes — 8.8 Inch Axle — E-150-350,
F-150-350 (4x2), Bronco

| Backlash Change Required | Thickness Change Required |
|--------------------------|---------------------------|--------------------------|---------------------------|--------------------------|---------------------------|--------------------------|---------------------------|
| .001 | .002 | .005 | .006 | .009 | .012 | .013 | .018 |
| .002 | .002 | .006 | .008 | .010 | .014 | .014 | .018 |
| .003 | .004 | .007 | .010 | .011 | .014 | .015 | .020 |
| .004 | .006 | .008 | .010 | .012 | .016 | | |

Chassis — Drive Axles

SERVICE SPECIFICATIONS — CONT'D

Differential Shim Selection — 9.0 Inch Axle — E-150, Bronco

| Feeler Gauge Reading | | Shim Required | | Feeler Gauge Reading | | Shim Required | | Feeler Gauge Reading | | Shim Required | |
|----------------------------|-------|------------------|-------|----------------------------|-------|------------------|-------|----------------------------|-------|------------------|-------|
| (mm) | (in.) | (mm) | (in.) | (mm) | (in.) | (mm) | (in.) | (mm) | (in.) | (mm) | (in.) |
| .889 | .035 | .127 | .005 | .584 | .023 | .432 | .017 | .279 | .011 | .737 | .029 |
| .864 | .034 | .152 | .006 | .559 | .022 | .451 | .018 | .254 | .010 | .0762 | .030 |
| .838 | .033 | .178 | .007 | .533 | .021 | .483 | .019 | .229 | .009 | .787 | .031 |
| .813 | .032 | .203 | .008 | .508 | .020 | .508 | .020 | .203 | .008 | .813 | .032 |
| .787 | .031 | .229 | .009 | .483 | .019 | .533 | .021 | .178 | .007 | .838 | .033 |
| .762 | .030 | .254 | .010 | .457 | .018 | .559 | .022 | .152 | .006 | .864 | .034 |
| .737 | .029 | .279 | .011 | .432 | .017 | .584 | .023 | .127 | .005 | .889 | .035 |
| .711 | .028 | .305 | .012 | .406 | .016 | .610 | .024 | .102 | .004 | .914 | .036 |
| .686 | .027 | .330 | .013 | .381 | .015 | .635 | .025 | .076 | .003 | .940 | .037 |
| .660 | .026 | .356 | .014 | .356 | .014 | .660 | .026 | .051 | .002 | .965 | .038 |
| .635 | .025 | .381 | .015 | .330 | .013 | .686 | .027 | | | | |
| .610 | .024 | .406 | .016 | .305 | .012 | .711 | .028 | | | | |

| Front Left | Front Right | Rear Left | Rear Right | Front Left | Front Right | Rear Left | Rear Right | Front Left | Front Right | Rear Left | Rear Right |
|------------|-------------|-----------|------------|------------|-------------|-----------|------------|------------|-------------|-----------|------------|
| 810 | 870 | 810 | 830 | 800 | 830 | 820 | 820 | 820 | 820 | 820 | 820 |
| 810 | 870 | 810 | 830 | 820 | 830 | 820 | 820 | 820 | 820 | 820 | 820 |
| 810 | 870 | 810 | 830 | 810 | 830 | 810 | 810 | 810 | 810 | 810 | 810 |
| | | 810 | 830 | 810 | 830 | 810 | 810 | 810 | 810 | 810 | 810 |

Chassis — Drive Axles

SERVICE SPECIFICATIONS — CONT'D

Differential Shim Selection — Traction-Lok Limited Slip Differential (Ford) — E-150

| Feeler Gauge Reading (1) | | Remove Shim(s) From Nominal | | Total Required Shim Pack Thickness (2) | |
|-----------------------------|-------------|--------------------------------|--------|---|--------|
| MM | Inches | MM | Inches | MM | Inches |
| 0.025-0.050 | 0.001-0.002 | None | None | 1.270 | 0.050 |
| 0.076-0.177 | 0.003-0.007 | 0.127 | 0.005 | 1.143 | 0.045 |
| 0.203-0.304 | 0.008-0.012 | 0.254 | 0.010 | 1.016 | 0.040 |
| 0.330-0.413 | 0.013-0.017 | 0.381 | 0.015 | 0.889 | 0.035 |
| 0.457-0.558 | 0.018-0.022 | 0.508 | 0.020 | 0.762 | 0.030 |
| 0.584-0.685 | 0.023-0.027 | 0.635 | 0.025 | 0.635 | 0.025 |
| 0.711-0.812 | 0.028-0.032 | 0.762 | 0.030 | 0.508 | 0.020 |
| 0.838-0.939 | 0.033-0.037 | 0.889 | 0.035 | 0.381 | 0.015 |
| 0.965-1.066 | 0.038-0.042 | 1.016 | 0.040 | 0.254 | 0.010 |
| 1.092-1.193 | 0.043-0.047 | 1.143 | 0.045 | 0.127 | 0.005 |
| 1.219-1.270 | 0.048-0.050 | 1.270 | 0.050 | 0.000 | 0.000 |

(1) With clutch hub, the shims and clutch plates are compressed 14-20 N·m (10-15 ft-lb).

(2) Service shims are available in 0.254mm (0.010 inch) and 0.127mm (0.005 inch).

Chassis — Drive Axles

SERVICE SPECIFICATIONS — CONT'D

**Differential Shim Selection — Integral Carrier Axle — Dana — E-250 —
E-350, F-250 — F-350 (4x2), F-250 (4x4)**

Standard

| Old Pinion Marking | New Pinion Marking | | | | | | | | |
|-----------------------|--------------------|--------|--------|--------|--------|--------|--------|--------|--------|
| | -4 | -3 | -2 | -1 | 0 | +1 | +2 | +3 | +4 |
| +4 | +0.008 | +0.007 | +0.006 | +0.005 | +0.004 | +0.003 | +0.002 | +0.001 | 0 |
| +3 | +0.007 | +0.006 | +0.005 | +0.004 | +0.003 | +0.002 | +0.001 | 0 | -0.001 |
| +2 | +0.006 | +0.005 | +0.004 | +0.003 | +0.002 | +0.001 | 0 | -0.001 | -0.002 |
| +1 | +0.005 | +0.004 | +0.003 | +0.002 | +0.001 | 0 | -0.001 | -0.002 | -0.003 |
| 0 | +0.004 | +0.003 | +0.002 | +0.001 | 0 | -0.001 | -0.002 | -0.003 | -0.004 |
| -1 | +0.003 | +0.002 | +0.001 | 0 | -0.001 | -0.002 | -0.003 | -0.004 | -0.005 |
| -2 | +0.002 | +0.001 | 0 | -0.001 | -0.002 | -0.003 | -0.004 | -0.005 | -0.006 |
| -3 | +0.001 | 0 | -0.001 | -0.002 | -0.003 | -0.004 | -0.005 | -0.006 | -0.007 |
| -4 | 0 | -0.001 | -0.002 | -0.003 | -0.004 | -0.005 | -0.006 | -0.007 | -0.008 |

Metric

| Old Pinion Marking | New Pinion Marking | | | | | | | | |
|-----------------------|--------------------|------|------|------|------|------|------|------|------|
| | -10 | -8 | -5 | -3 | 0 | +3 | +5 | +8 | +10 |
| +10 | .20 | .18 | .15 | .13 | .10 | .08 | .05 | .03 | 0 |
| +8 | .18 | .15 | .13 | .10 | .08 | .05 | .03 | 0 | -.03 |
| +5 | .15 | .13 | .10 | .08 | .05 | .03 | 0 | -.03 | -.05 |
| +3 | .13 | .10 | .08 | .05 | .03 | 0 | -.03 | -.05 | -.08 |
| 0 | .10 | .08 | .05 | .03 | 0 | -.03 | -.05 | -.08 | -.10 |
| -3 | .08 | .05 | .03 | 0 | -.03 | -.05 | -.08 | -.10 | -.13 |
| -5 | .05 | .03 | 0 | -.03 | -.05 | -.08 | -.10 | -.13 | -.15 |
| -8 | .03 | 0 | -.03 | -.05 | -.08 | -.10 | -.13 | -.15 | -.18 |
| -10 | 0 | -.03 | -.05 | -.08 | -.10 | -.13 | -.15 | -.18 | -.20 |

Chassis — Drive Axles

SERVICE SPECIFICATIONS — CONT'D

Differential Shim Selection — Dana Front Drive Axle — F-150-350 (4x4), Bronco

Standard

| Old Pinion Marking | New Pinion Marking | | | | | | | | |
|-----------------------|--------------------|--------|--------|--------|--------|--------|--------|--------|--------|
| | -4 | -3 | -2 | -1 | 0 | +1 | +2 | +3 | +4 |
| +4 | +0.008 | +0.007 | +0.006 | +0.005 | +0.004 | +0.003 | +0.002 | +0.001 | 0 |
| +3 | +0.007 | +0.006 | +0.005 | +0.004 | +0.003 | +0.002 | +0.001 | 0 | -0.001 |
| +2 | +0.006 | +0.005 | +0.004 | +0.003 | +0.002 | +0.001 | 0 | -0.001 | -0.002 |
| +1 | +0.005 | +0.004 | +0.003 | +0.002 | +0.001 | 0 | -0.001 | -0.002 | -0.003 |
| 0 | +0.004 | +0.003 | +0.002 | +0.001 | 0 | -0.001 | -0.002 | -0.003 | -0.004 |
| -1 | +0.003 | +0.002 | +0.001 | 0 | -0.001 | -0.002 | -0.003 | -0.004 | -0.005 |
| -2 | +0.002 | +0.001 | 0 | -0.001 | -0.002 | -0.003 | -0.004 | -0.005 | -0.006 |
| -3 | +0.001 | 0 | -0.001 | -0.002 | -0.003 | -0.004 | -0.005 | -0.006 | -0.007 |
| -4 | 0 | -0.001 | -0.002 | -0.003 | -0.004 | -0.005 | -0.006 | -0.007 | -0.008 |

Metric

| Old Pinion Marking | New Pinion Marking | | | | | | | | |
|-----------------------|--------------------|------|------|------|------|------|------|------|------|
| | -10 | -8 | -5 | -3 | 0 | +3 | +5 | +8 | +10 |
| +10 | .20 | .18 | .15 | .13 | .10 | .08 | .05 | .03 | 0 |
| +8 | .18 | .15 | .13 | .10 | .08 | .05 | .03 | 0 | -.03 |
| +5 | .15 | .13 | .10 | .08 | .05 | .03 | 0 | -.03 | -.05 |
| +3 | .13 | .10 | .08 | .05 | .03 | 0 | -.03 | -.05 | -.08 |
| 0 | .10 | .08 | .05 | .03 | 0 | -.03 | -.05 | -.08 | -.10 |
| -3 | .08 | .05 | .03 | 0 | -.03 | -.05 | -.08 | -.10 | -.13 |
| -5 | .05 | .03 | 0 | -.03 | -.05 | -.08 | -.10 | -.13 | -.15 |
| -8 | .03 | 0 | -.03 | -.05 | -.08 | -.10 | -.13 | -.15 | -.18 |
| -10 | 0 | -.03 | -.05 | -.08 | -.10 | -.13 | -.15 | -.18 | -.20 |

Chassis — Drive Axles

SERVICE SPECIFICATIONS — CONT'D

Differential Shim Selection — Dana Front Drive Axle — Ranger (4x4), Bronco II

Standard

| Old Pinion Marking | New Pinion Marking | | | | | | | | | |
|-----------------------|--------------------|--------|--------|--------|--------|--------|--------|--------|--------|--|
| | -4 | -3 | -2 | -1 | 0 | +1 | +2 | +3 | +4 | |
| +4 | +0.008 | +0.007 | +0.006 | +0.005 | +0.004 | +0.003 | +0.002 | +0.001 | 0 | |
| +3 | +0.007 | +0.006 | +0.005 | +0.004 | +0.003 | +0.002 | +0.001 | 0 | -0.001 | |
| +2 | +0.006 | +0.005 | +0.004 | +0.003 | +0.002 | +0.001 | 0 | -0.001 | -0.002 | |
| +1 | +0.005 | +0.004 | +0.003 | +0.002 | +0.001 | 0 | -0.001 | -0.002 | -0.003 | |
| 0 | +0.004 | +0.003 | +0.002 | +0.001 | 0 | -0.001 | -0.002 | -0.003 | -0.004 | |
| -1 | +0.003 | +0.002 | +0.001 | 0 | -0.001 | -0.002 | -0.003 | -0.004 | -0.005 | |
| -2 | +0.002 | +0.001 | 0 | -0.001 | -0.002 | -0.003 | -0.004 | -0.005 | -0.006 | |
| -3 | +0.001 | 0 | -0.001 | -0.002 | -0.003 | -0.004 | -0.005 | -0.006 | -0.007 | |
| -4 | 0 | -0.001 | -0.002 | -0.003 | -0.004 | -0.005 | -0.006 | -0.007 | -0.008 | |

Metric

| Old Pinion Marking | New Pinion Marking | | | | | | | | | |
|-----------------------|--------------------|------|------|------|------|------|------|------|------|--|
| | -10 | -8 | -5 | -3 | 0 | +3 | +5 | +8 | +10 | |
| +10 | .20 | .18 | .15 | .13 | .10 | .08 | .05 | .03 | 0 | |
| +8 | .18 | .15 | .13 | .10 | .08 | .05 | .03 | 0 | -.03 | |
| +5 | .15 | .13 | .10 | .08 | .05 | .03 | 0 | -.03 | -.05 | |
| +3 | .13 | .10 | .08 | .05 | .03 | 0 | -.03 | -.05 | -.08 | |
| 0 | .10 | .08 | .05 | .03 | 0 | -.03 | -.05 | -.08 | -.10 | |
| -3 | .08 | .05 | .03 | 0 | -.03 | -.05 | -.08 | -.10 | -.13 | |
| -5 | .05 | .03 | 0 | -.03 | -.05 | -.08 | -.10 | -.13 | -.15 | |
| -8 | .03 | 0 | -.03 | -.05 | -.08 | -.10 | -.13 | -.15 | -.18 | |
| -10 | 0 | -.03 | -.05 | -.08 | -.10 | -.13 | -.15 | -.18 | -.20 | |

Chassis — Drive Axles

SERVICE SPECIFICATIONS — CONT'D

7.5 Inch Axle Adjustments

| Adjustment | Specification |
|--|--|
| RING GEAR RUNOUT | |
| Maximum. | 0.102mm (0.004 inch) |
| Nominal shim size to be installed on left side during diagnosis. | 6.73mm (0.265 inch) |
| RING GEAR BACKLASH | |
| Backlash between ring gear and pinion teeth. | 0.20-0.38mm (0.008-0.015 inch) NOTE: Preferred setting is 0.304-0.381mm (0.012-0.015 inch) |
| Maximum backlash variation between teeth. | 0.10mm (0.004 inch) |
| DRIVE PINION DEPTH | |
| Use Pinion Depth Tool Set, D79P-4020-A to determine drive pinion depth setting. | — |
| DIFFERENTIAL BEARING PRELOAD | |
| Add 0.152mm (0.006 inch) to each side of differential case shim stack determined for correct ring gear backlash. | — |
| COMPANION FLANGE RUNOUT | |
| Total Indicated Runout. | 0.25mm (0.010 inch) |

| Companion Flange Runout | | Front Axle | Rear Axle |
|-------------------------|-------------|-------------|-------------|
| Front Axle | 0.000-0.002 | 0.000-0.002 | 0.000-0.002 |
| Rear Axle | 0.000-0.002 | 0.000-0.002 | 0.000-0.002 |

Chassis — Drive Axles

SERVICE SPECIFICATIONS — CONT'D

8.8 Inch Axle Adjustments

| Description | Inches(mm) |
|---|---|
| Maximum Runout of Back Face of Ring Gear | 0.004(0.10) |
| Maximum Runout of Back Face of Differential Case Flange | 0.003(0.08) |
| Differential Side Gear Thrust Washer Thickness | 0.030-0.032(0.76-0.81) |
| Differential Pinion Gear Thrust Washer Thickness | 0.030-0.032(0.76-0.81) |
| Nominal Pinion Locating Shim | 0.030(0.76) |
| Available Pinion Gear Shims in Steps of 0.001 Inch | 0.021-0.037(0.53-0.94) |
| Backlash Between Ring Gear & Pinion Teeth | 0.008-0.015(0.20-0.38) (0.012-0.015 inches Preferred) (0.30-0.38mm Preferred) |
| Maximum Backlash Variation Between Teeth | 0.004(0.10) |
| Maximum Radial Runout of Companion Flange in Assembly | 0.012(0.30) T.I.R. |

9.0 Inch Axle Adjustments

| Description | mm | Inch |
|--|-------------|-------------|
| Backlash Between Ring Gear and Pinion | 0.203-0.381 | 0.008-0.015 |
| Maximum Backlash Variation Between Teeth | 0.102 | 0.004 |
| Maximum Runout of Backface of Ring Gear | 0.102 | 0.004 |
| Differential Side Gear Thrust Washer Thickness | 0.762-0.812 | 0.030-0.032 |
| Differential Pinion Gear Thrust Washer Thickness | 0.762-0.838 | 0.030-0.033 |
| Nominal Locating Shim (Continued) Removable Carrier | 0.381 | 0.015 |
| Shims Available (Steps of 0.001) Removable Carrier | 0.254-0.736 | 0.010-0.029 |
| Differential Bearing Preload | Used | 0.127-0.117 |
| | New | 0.203-0.304 |
| | | 0.005-0.007 |
| | | 0.008-0.012 |

Integral Carrier Axle Dana (Conventional and Limited Slip) Adjustments

| Description | Specification |
|--|-----------------------------------|
| Backlash Between Ring Gear and Pinion | 0.10-0.23mm (0.004-0.009 inch) |
| Backlash Maximum Variation Between Teeth | 0.05mm (0.003 inch) |

Chassis — Drive Axles

SERVICE SPECIFICATIONS — CONT'D

Traction-Lok Axle Adjustments — 8.8 Inch Ring Gear Axle

| Description | Inches |
|---|--|
| Maximum Runout of Backface of Ring Gear or Differential Case Flange | 0.003 |
| Differential Side Gear Thrust Washer Thickness | 0.030-0.032 |
| Differential Pinion Gear Thrust Washer Thickness | 0.030-0.032 |
| Differential Carrier Spread | 0.016 |
| Nominal Pinion Locating Shim | 0.030 |
| Available Pinion Gear Shims in Steps of 0.001 Inch | 0.021-0.037 |
| Backlash Between Ring Gear and Pinion Teeth | 0.008-0.015 (0.012-0.015 Preferred) |
| Maximum Backlash Variation Between Teeth | 0.004 |
| Maximum Radial Runout of Companion Flange in Assembly | 0.010 T.I.R. |

Dana Model 28 Front Drive Axle Specifications — Ranger (4x4), Bronco II

| Description | Specification |
|--------------------------------|---|
| Carrier Spread | Removal: 0.25mm (0.010 inch) Installation: 0.37mm (0.015 inch) |
| Drive Pinion Rotational Torque | 1.7-4.0 N·m (15-35 in-lb) |
| Drive Pinion Nut Torque | 237-305 N·m (175-225 ft-lb) |
| Ring Gear and Pinion Backlash | 0.01-0.25mm (0.004-0.010 inch) |

Dana Axle Front Drive Adjustments — F-150 — F-350 (4x4) and Bronco

| Description | Specification |
|----------------------|---|
| Drive Pinion Preload | 2.25-2.43 N·m (20-40 in-lb) |
| Ring Gear Backlash | 0.13-0.23mm (0.005-0.009 inch) No more than 0.08mm (0.003 inch) variation in any three places |

Chassis — Drive Axles

SERVICE SPECIFICATIONS — CONT'D

8.8 Inch and 9.0 Inch Axle (Conventional and Traction-Lok) Adjustment Torques

| Description | Torque | | Torque | |
|---|---------|---------|--------|--------------|
| | N·m | (in-lb) | N·m | (ft-lb) |
| Minimum torque required to tighten pinion flange nut to obtain correct pinion bearing preload | — | — | 217 | (160) (1) |
| Pinion Bearing Preload — (Collapsible spacer) (2) | | | | |
| Original Bearings — 8.8 inch | .9-1.5 | (8-14) | — | — |
| New Bearings — 8.8 inch | 1.8-3.3 | (16-29) | — | — |

(1) If pinion bearing preload exceeds specification before this torque is obtained, install a new spacer.

(2) With Oil Seal.

Traction-Lok Axle Rotating Torques

| Axle | N·m | (ft-lb) |
|-------------------------|-------------|---------|
| 7.5 Inch | 41 (1) | 30 |
| 8.8 Inch | 41 | 30 |
| 9.0 Inch (Limited Slip) | 120-250 (2) | 163-338 |

(1) With original cones. 54 N·m (40 ft-lb) with new ones.

(2) With new clutch plates. 54 N·m (40 ft-lb) with reused clutch plates.

Ring Gear Torque Specifications

| Model | Torque Limits | |
|------------------|---------------|---------|
| | N·m | (ft-lb) |
| Ford | 95-115 | 70-85 |
| Dana 44 | 61-81 | 45-60 |
| Dana 60-3, 61-2 | 136-163 | 100-120 |
| Dana 70, 70-H.D. | 136-149 | 100-110 |
| Dana 60-5 | 136-163 | 100-120 |
| Dana 61-1 | 136-163 | 100-120 |

Chassis — Drive Axles

SERVICE SPECIFICATIONS — CONT'D

Driveshaft — Companion Flange Combined Runout

| Flange Bearing Cup Runout | Driveshaft Universal Cross-Shaft Runout — Inch | | | | | | | | | | | | |
|------------------------------------|--|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| | 0.000 | 0.001 | 0.002 | 0.003 | 0.004 | 0.005 | 0.006 | 0.007 | 0.008 | 0.009 | 0.010 | 0.011 | 0.012 |
| 0.000 | 0.000 | 0.001 | 0.002 | 0.003 | 0.004 | 0.005 | 0.006 | 0.007 | 0.008 | 0.009 | 0.010 | 0.011 | 0.012 |
| 0.001 | 0.001 | 0.0013 | 0.0022 | 0.0032 | 0.0042 | 0.0051 | 0.0061 | 0.0071 | 0.0081 | 0.0091 | 0.0010 | 0.011 | 0.012 |
| 0.002 | 0.002 | 0.0022 | 0.0027 | 0.0037 | 0.0045 | 0.0053 | 0.0062 | 0.0072 | 0.0082 | 0.0092 | 0.0101 | 0.0111 | 0.0121 |
| 0.003 | 0.003 | 0.0032 | 0.0036 | 0.0042 | 0.005 | 0.0058 | 0.0067 | 0.0077 | 0.0085 | 0.0094 | 0.0104 | 0.0113 | 0.0123 |
| 0.004 | 0.004 | 0.0042 | 0.0045 | 0.005 | 0.0057 | 0.0064 | 0.0072 | 0.0081 | 0.009 | 0.0097 | 0.0107 | 0.0116 | 0.0126 |
| 0.005 | 0.005 | 0.0051 | 0.0053 | 0.0058 | 0.0063 | 0.0071 | 0.0078 | 0.0087 | 0.0094 | 0.0102 | 0.0111 | 0.012 | 0.013 |
| 0.006 | 0.006 | 0.0061 | 0.0062 | 0.0068 | 0.0072 | 0.0078 | 0.0085 | 0.0092 | 0.010 | 0.0108 | 0.0116 | 0.124 | 0.0134 |
| 0.007 | 0.007 | 0.0071 | 0.0073 | 0.0075 | 0.0081 | 0.0087 | 0.0093 | 0.0099 | 0.0103 | 0.0114 | 0.0122 | 0.013 | 0.0138 |
| 0.008 | 0.008 | 0.0081 | 0.0082 | 0.0087 | 0.009 | 0.0094 | 0.010 | 0.0104 | 0.011 | 0.012 | 0.0128 | 0.0135 | 0.0144 |
| 0.009 | 0.009 | 0.0091 | 0.0092 | 0.0094 | 0.0097 | 0.102 | 0.108 | 0.0114 | 0.012 | 0.0127 | 0.0134 | 0.0141 | 0.015 |
| 0.010 | 0.010 | 0.010 | 0.0101 | 0.0104 | 0.0107 | 0.0111 | 0.0116 | 0.0122 | 0.0128 | 0.0134 | 0.0141 | 0.0148 | 0.0156 |
| 0.011 | 0.011 | 0.011 | 0.0111 | 0.0113 | 0.0116 | 0.012 | 0.0124 | 0.013 | 0.0135 | 0.0141 | 0.0148 | 0.0154 | 0.0162 |
| 0.012 | 0.012 | 0.012 | 0.0121 | 0.0123 | 0.0126 | 0.013 | 0.0134 | 0.0138 | 0.0144 | 0.015 | 0.0156 | 0.0162 | 0.0169 |

The total (combined) companion flange runout is located in the square where the columns containing the flange bearing cup runout and universal cross shaft runout readings intersect.

Front Pinion and Driveline Angles

(See Suspension — Front in this Manual)

| Front Axle | Front Wheel | Rear Axle | Rear Wheel | Front Wheel |
|------------|-------------|-----------|------------|-------------|
| 10° ± | 16 | 10° ± | 16 | 10° ± |

Chassis — Drive Axles

SERVICE SPECIFICATIONS — CONT'D

Driveline Angles — Rear — Ranger

| Model | Wheelbase | Engine | Transmission | Rear Spring Capacity (Lb) | Rear Axle | Engine Angle | Driveshaft Angle | Pinion Angle |
|-----------------|----------------------|--------|--------------|---------------------------|-----------|--------------|------------------|--------------|
| Ranger (4x2) | 108 inch (2743mm) | All | All | 860/927 | 6.75° | 5.5° | 7.4° | 6.6° |
| | | | | | 7.50° | 5.5° | 6.8° | 6.6° |
| | | | | 1100 | 6.75° | 5.5° | — | 6.6° |
| | | | | | 7.50° | 5.5° | 7.3° | 6.6° |
| | 114 inch (2895mm) | All | All | 860/927 | 6.75° | 5.5° | 6.6° | 6.6° |
| | | | | | 7.50° | 5.5° | 6.1° | 6.6° |
| | | | | 1100/1200 | 6.75° | 5.5° | — | 6.6° |
| | | | | | 7.50° | 5.5° | 6.6° | 6.6° |
| Ranger (4x4) | 108 inch (2743mm) | All | C5 4-Speed | 860/927 | 7.50° | 5.5° | 9.6° | 6.6° |
| | | | 5-Speed | 860/927 | 7.50° | 5.5° | 9.8° | 6.6° |
| | | | C5 4-Speed | 1100 | 7.50° | 5.5° | 10.2° | 6.6° |
| | | | 5-Speed | 1100 | 7.50° | 5.5° | 10.4° | 6.6° |
| | 114 inch (2895mm) | All | C5 4-Speed | 860/927 | 7.50° | 5.5° | 8.8° | 6.6° |
| | | | 5-Speed | 860/927 | 7.50° | 5.5° | 8.9° | 6.6° |
| | | | C5 4-Speed | 1100 | 7.50° | 5.5° | 9.4° | 6.6° |
| | | | 5-Speed | 1100 | 7.50° | 5.5° | 9.5° | 6.6° |

Driveline Angles — E-F-150-350, Bronco

Engine Angles to Horizontal

Engine F-150 — F-350 (4x2) (4x4), and Bronco Couplingshaft, Driveshaft & Rear Axle Pinion Angles

| Model | Wheelbase | Engine | Transmission | Angles |
|-------------------------------|-----------|-------------|--------------|--------|
| F-150-350 (4x2) (4x4), Bronco | All | All Engines | All | 5-1/2° |

Chassis — Drive Axles

SERVICE SPECIFICATIONS — CONT'D

Driveline Angularity F-150 — F-350 (4x2)

| Model | Wheel-base MM (inches) | Rear Spring (Kg) Min. Max. | Rear Axle Pinion Angle To Horizontal (Degrees) | Driveline Angle To Horizontal (Degrees) | | | | | | | |
|-------|------------------------------|--|--|---|-------|-------|-------|-------|-------|-------|--|
| | | | | Transmission | | | | | | | |
| | | | | M3 | SROD | M4(N) | M4(W) | C5 | C6 | AOD | |
| F-150 | 2967 (117) | 560 | 6 (1) (3) | 7-1/2 | 8 | — | 8 | 8 | 8 | 8 | |
| | | 840 | 6-1/2 (1) (3) | 8-1/2 | 8-1/2 | — | 8-1/2 | 8-1/2 | 9 | 9 | |
| F-150 | 3378 (133) | 560 | 6 (1) (3) | 6 | 6 | — | 6 | 6 | 6 | 6 | |
| | | 840 | 6-1/2 (1) (3) | 6-1/2 | 6-1/2 | — | 6-1/2 | 6-1/2 | 7 | 7 | |
| | | 560 | 6 (2) (4) | — | — | 5 | — | — | — | — | |
| | | 840 | 6-1/2 (2) (4) | — | — | 5 | — | — | — | — | |
| | | 560 | 6 (2) (3) | — | — | 6-1/2 | — | — | — | — | |
| | | 840 | 6-1/2(2) (3) | — | — | 8 | — | — | — | — | |
| F-150 | 3526 (138) | 630 | 6 (2) (4) | 4-1/2 | 4-1/2 | 5 | 5 | — | 4-1/2 | 4-1/2 | |
| | | 840 | 6-1/2 (2) (4) | 4-1/2 | 4-1/2 | 5 | 5 | — | 4-1/2 | 4-1/2 | |
| | | 630 | 6 (2) (3) | 6 | 6 | 6 | 6 | — | 6-1/2 | 6-1/2 | |
| | | 840 | 6-1/2(2) (3) | 7-1/2 | 7-1/2 | 7-1/2 | 7-1/2 | — | 7-1/2 | 7-1/2 | |
| F-150 | 3937 (155) | 630 | 6 (2) (4) | 4 | 4 | 4 | 4 | — | 4 | 4 | |
| | | 840 | 6-1/2 (2) (4) | 4 | 4 | 4 | 4 | — | 4 | 4 | |
| | | 630 | 6 (2) (3) | 5-1/2 | 5-1/2 | 5 | 5 | — | 5-1/2 | 5-1/2 | |
| | | 840 | 6-1/2 (2) (3) | 6-1/2 | 6-1/2 | 6-1/2 | 6-1/2 | — | 6-1/2 | 7 | |

(1) One-Piece Driveline

(2) Two-Piece Driveline

(3) Driveshaft

(4) Coupling Shaft

CE4205-28

Chassis — Drive Axles

SERVICE SPECIFICATIONS — CONT'D

Driveline Angularity F-150 — F-350 (4x2)

| Model | Wheel-base MM (inches) | Rear Spring (Kg) Min. Max. | Rear Axle Pinion Angle To Horizontal (Degrees) | Driveline Angle To Horizontal (Degrees) | | | | | | |
|-------|------------------------------|--|--|---|-------|-------|-------|----|-------|-------|
| | | | | Transmission | | | | | | |
| | | | | M3 | SROD | M4(N) | M4(W) | C5 | C6 | AOD |
| F-250 | 3378 (133) | 810 | 6 (1) (3) | 6-1/2 | 6-1/2 | — | 6-1/2 | — | 6-1/2 | 6-1/2 |
| | | 1175 | 6 (1) (3) | 7 | 7 | — | 7 | — | 7 | 7 |
| | | 810 | 6 (2) (4) | — | — | 6-1/2 | — | — | — | — |
| | | 1175 | 6 (2) (4) | — | — | 6-1/2 | — | — | — | — |
| | | 810 | 6(2) (3) | — | — | 6 | — | — | — | — |
| | | 1175 | 6(2) (3) | — | — | 7 | — | — | — | — |
| F-250 | 3526 (138) | 810 | 6 (2) (4) | 4-1/2 | 4-1/2 | 5 | 5 | — | 4-1/2 | 4-1/2 |
| | | 1175 | 6 (2) (4) | 4-1/2 | 4-1/2 | 5 | 5 | — | 4-1/2 | 4-1/2 |
| | | 810 | 6(2) (3) | 7 | 7 | 7 | 7 | — | 8 | 8 |
| | | 1175 | 6(2) (3) | 8 | 8 | 8 | 8 | — | 8 | 8 |
| F-250 | 3937 (155) | 810 | 6 (2) (4) | 4 | 4 | 4 | 4 | — | 4 | 3-1/2 |
| | | 1175 | 6 (2) (4) | 4 | 4 | 4 | 4 | — | 4 | 3-1/2 |
| | | 810 | 6(2) (3) | 6 | 6 | 6 | 6 | — | 6 | 7 |
| | | 1175 | 6(2) (3) | 7 | 7 | 7 | 7 | — | 7 | 7-1/2 |

(1) One-Piece Driveline
(2) Two-Piece Driveline

(3) Driveshaft
(4) Coupling Shaft

CE4205-2B

Chassis — Drive Axles

SERVICE SPECIFICATIONS — CONT'D

Driveline Angularity — F-150 — F-350 (4x2) — Cont'd

| Model | Wheel-base MM (Inches) | Rear Spring (Kg) Min. Max. | Rear Axle Pinion Angle To Horizontal (Degrees) | Driveline Angle To Horizontal (Degrees) | | |
|----------------------------|------------------------------|--|--|--|-------|----------|
| | | | | Transmission | | |
| | | | | M4(N) | M4(W) | C6 |
| F-250 H.D., F-350 SRW | 3378 (133) | 1275 | 6 (1) (3) | — | — | 6-1/2 |
| | | 1460 | 5 (1) (3) | — | — | 5 |
| F-350 DRW | 3378 (133) | 1275 | 6 (1) (3) | — | — | 5 |
| | | 1460 | 5 (1) (3) | — | — | 6-1/2 |
| F-350 SRW | 3378 (133) | 1275 | 6 (2) (4) | 5 | 5 | 5 |
| | | 1460 | 5 (2) (4) | 5 | 5 | 5 |
| | | 1275 | 6 (2) (3) | 7-1/2 | 7-1/2 | 7-1/2 |
| | | 1460 | 5 (2) (3) | 5 | 5 | 5 |
| F-350 DRW | 3378 (133) | 1275 | 6 (2) (4) | 5 | 5 | 5 |
| | | 1460 | 5 (2) (4) | 5 | 5 | 5 |
| | | 1275 | 6 (2) (3) | 7-1/2 | 7-1/2 | 7-1/2 |
| | | 1460 | 5 (2) (3) | 5 | 5 | 5 |
| F-350 F-250 H.D. SRW | 3475 (137) | 1275 | 5 (2) (4) | 5 | 5 | 5 |
| | | 1460 | 5 (2) (4) | 5 | 5 | 5 |
| | | 1275 | 5 (2) (3) | 6-1/2 | 6-1/2 | 6-1/2 |
| | | 1460 | 5 (2) (3) | 5-1/2 | 5 1/2 | 5 1/2 |
| F-350 DRW | 3475 (137) | 1275 | 5 (2) (4) | 5 | 5 | 5 |
| | | 1460 | 5 (2) (4) | 5 | 5 | 5 |
| | | 1275 | 5 (2) (3) | 6-1/2 | 6-1/2 | 6-1/2 |
| | | 1460 | 5 (2) (3) | 5-1/2 | 5-1/2 | 5-1/2 |
| F-350 F-250 H.D. SRW | 3937 (155) | 1275 | 6 (2) (4) | 4 | 4 | 4 |
| | | 1460 | 5 (2) (4) | 4 | 4 | 4 |
| | | 1275 | 6 (2) (3) | 6 | 6 | 6 |
| | | 1460 | 5 (2) (3) | 4 | 4 | 4 |
| F-350 DRW | 3937 (155) | 1275 | 6 (2) (4) | 4 | 4 | 4 |
| | | 1460 | 5 (2) (4) | 4 | 4 | 4 |
| | | 1275 | 6 (2) (3) | 6 | 6 | 6 |
| | | 1460 | 5 (2) (3) | 4 | 4 | 4 |

Chassis — Drive Axles

SERVICE SPECIFICATIONS — CONT'D

Driveline Angularity — F-150 — F-350 (4x2) — Cont'd

| Model | Wheel-base MM (Inches) | Rear Spring (Kg) Min. Max. | Rear Axle Pinion Angle To Horizontal (Degrees) | Driveline Angle To Horizontal (Degrees) | | |
|-----------|------------------------------|--|--|--|-------|-------|
| | | | | Transmission | | |
| | | | | M4(N) | M4(W) | C6 |
| F-350 | 4084 (161) | 1290 | 5(2)(4) | 3 | 3 | 3 |
| | | 1463 | 5(2)(4) | 3 | 3 | 3 |
| | | 1290 | 5(2)(3) | 6 | 6 | 6-1/2 |
| | | 1463 | 5(2)(3) | 5 | 5 | 5-1/2 |
| F-350 DRW | 4084 (161) | 1290 | 5(2)(4) | 3-1/2 | 3-1/2 | 3 |
| | | 1463 | 5(2)(4) | 3-1/2 | 3-1/2 | 3 |
| | | 1290 | 5(2)(3) | 6 | 6 | 6-1/2 |
| | | 1463 | 5(2)(3) | 5-1/2 | 5-1/2 | 5-1/2 |

Chassis — Drive Axles

SERVICE SPECIFICATIONS — CONT'D

Rear Axle Pinion Angles to Horizontal

F 150-250-350 (4x4), Bronco

| Model | Wheelbase | | Spring Rating at Pad (Lbs) | Spring Part No. (5560) | Curb Load Empty |
|----------------|-----------|------|-------------------------------|---------------------------|-----------------|
| | MM | Inch | | | |
| F150 (4x4) | 2967 | 117 | 1389 | E1TA-SB | 6-1/2° |
| | 2967 | 117 | 1654 | E1TA-TB | 6-1/2° |
| | 2967 | 117 | 1786 | E1TA-UB | 6-1/2° |
| F-150 (4x4) | 3378 | 133 | 1389 | E1TA-SB | 5-1/2° |
| | 3378 | 133 | 1654 | E1TA-TB | 5° |
| | 3378 | 133 | 1786 | E1TA-UB | 5° |
| F-250 (4x4) LD | 3378 | 133 | 1786 | EOTA-ASE | 6° |
| | 3378 | 133 | 2073 | EOTA-ATC | 6° |
| | 3378 | 133 | 2372 | EOTA-AUC | 6° |
| | 3378 | 133 | 2590 | EOTA-AVA | 6° |
| | 3378 | 133 | 2811 | EOTA-BAB | 6° |
| F-250 (4x4) HD | 3378 | 133 | 2811 | EOTA-BAB | 5-1/2° |
| F-350 (4x4) | 3378 | 133 | 2977 | EOTA-BBA | 5-1/2° |
| F-150 (4x4) | 3937 | 155 | 1654 | E1TA-TB | 5° |
| | 3937 | 155 | 1786 | E1TA-UB | 5° |
| F-250 (4x4) | 3937 | 155 | 1786 | EOTA-ASE | 6° |
| | 3937 | 155 | 2073 | EOTA-ATC | 6° |
| | 3937 | 155 | 2372 | EOTA-AUC | 6° |
| | 3937 | 155 | 2590 | EOTA-AVA | 6° |
| Bronco | 2660 | 104 | 1390 | EOTA-AYB | 10-1/2° |
| | 2660 | 104 | 1650 | EOTA-AZC | 10-1/2° |

CE3921-2B

Chassis — Drive Axles

SERVICE SPECIFICATIONS — CONT'D

Rear Driveshaft Angles to Horizontal

F-150-250-350 (4x4), Bronco

| Model | Wheelbase | | Engine | Spring Rating At Pad (lbs) | Transmission | Curb Load Empty |
|-------------------------------|-----------|------|--------|-------------------------------|--------------|--------------------|
| | MM | Inch | | | | |
| F-150 (4x4) | 2967 | 117 | All | 1389 | All | 11-1/2° |
| | | | | 1654 | | |
| | | | | 1786 | | |
| F-150 (4x4) | 3378 | 133 | All | 1654 | All | 8-1/2° |
| | | | | 1786 | | |
| F-150 (4x4) | 3378 | 133 | All | 1389 | All | 9-1/2° |
| F-250 (4x4) LD | 3378 | 133 | All | 1786 | All | 8-1/2° |
| F-250 (4x4) LD | 3378 | 133 | All | 2073 | All | 8-1/2° |
| F-250 (4x4) LD | 3378 | 133 | All | 2372 | All | 9° |
| | | | | 2590 | | |
| | | | | 2811 | | |
| F-250 (4x4) HD F-350 (4x4) | 3378 | 133 | All | 2811 | All | 8-1/2° |
| | | | | 2977 | | |
| F-150 (4x4) | 3937 | 155 | All | 1654 | All | 7-1/2° |
| | | | | 1786 | | |
| F-250 (4x4) | 3937 | 155 | All | 1786 | All | 7° |
| F-250 (4x4) | 3937 | 155 | All | 2973 | All | 7-1/2° |
| F-250 (4x4) | 3937 | 155 | All | 2372 | All | 8° |
| | | | | 2590 | | |
| Bronco | 2660 | 104 | All | 1390 | All | 12° |
| Bronco | 2660 | 104 | All | 1650 | All | 12-1/2° |

Engine Angle to Horizontal

E-150-350

| Model | Wheelbase | Engine | Transmission | Angle |
|-------|-----------|--------|--------------|-------|
| All | All | All | All | 4° |

Chassis — Drive Axles

SERVICE SPECIFICATIONS — CONT'D

Coupling Shaft Angles to Horizontal at Curb Load Empty

E-150 — E-350

| Model | Wheelbase | | Engine | Transmission | Angle |
|-----------|-----------|------|--|----------------|--------|
| | MM | Inch | | | |
| E-250-350 | 3505 | 138 | 4.9L (300 CID) I-6 | 3-Speed Manual | 3-1/2° |
| E-250-350 | 3505 | 138 | 4.9L (300 CID) I-6 5.8L (351 CID) V-8 6.6L (400 CID) V-8 7.5L (460 CID) V-8 | C-6 Auto | 3-1/2° |
| E-250-350 | 4013 | 158 | 5.8L (351 CID) V-8 6.6L (400 CID) V-8 7.5L (460 CID) V-8 | C-6 Auto | 3-1/2° |

CE3924-2B

Driveshaft Angle to Horizontal at Curb Load (Empty)

E-150 — E-350

| Model | Wheelbase | | Engine | Transmission | Spring Rating At Pad (lbs) | Angle |
|-------|-----------|------|--|---------------------|--|---|
| | MM | Inch | | | | |
| E-150 | 3150 | 124 | 4.9L (300 CID) I-6 5.0L (302 CID) V-8 | 3-Speed Manual | 1250 1450 1685 1750 | 6° 6-1/2° 6-1/2° 7° |
| E-150 | 3150 | 124 | 4.9L (300 CID) I-6 5.0L (302 CID) V-8 | 4-Speed O.D. Manual | 1250 1450 1685 1750 | 6° 6-1/2° 6-1/2° 7° |
| E-150 | 3150 | 124 | 4.9L (300 CID) I-6 5.0L (302 CID) V-8 5.8L (351 CID) V-8 | C6 Auto | 1250 1450 1685 1750 | 6° 6-1/2° 6-1/2° 7° |
| E-150 | 3505 | 138 | 4.9L (300 CID) I-6 5.0L (302 CID) V-8 | 3-Speed Manual | 1250 1450 1685 1750 | 4° 4-1/2° 5° 5° |
| E-150 | 3505 | 138 | 4.9L (300 CID) I-6 5.0L (302 CID) V-8 | 4-Speed O.D. Manual | 1250 1450 1685 1750 | 4-1/2° 4-1/2° 5-1/4° 5° |
| E-150 | 3505 | 138 | 4.9L (300 CID) I-6 5.0L (302 CID) V-8 5.8L (351 CID) V-8 | C6 Auto | 1250 1450 1685 1750 | 4-1/2° 4-1/2° 5-1/4° 5° |
| E-250 | 3505 | 138 | 4.9L (300 CID) I-6 | 3-Speed Manual | 1785 1825 2075 2100 2365 2450 2700 | 5-1/2°(2) 6°(2) 5-1/2°(2) 6-1/2°(2) 5-1/2°(2) 7°(2) 7-1/2°(2) |

Chassis — Drive Axles

SERVICE SPECIFICATIONS — CONT'D

Driveshaft Angle to Horizontal at Curb Load (Empty)

E-150 — E-350 — Cont'd

| Model | Wheelbase | | Engine | Transmission | Spring Rating At Pad (lbs) | Angle |
|-------|-----------|------|--|----------------|----------------------------|------------|
| | MM | Inch | | | | |
| E-250 | 3505 | 138 | 4.9L (300 CID) I-6 5.0L (302 CID) V-8 5.8L (351 CID) V-8 6.6L (400 CID) V-8 | C6 Auto. | 1785 | 5° (1) |
| | | | | | 1785 | 5-1/2° (2) |
| | | | | | 1825 | 5-1/2° (1) |
| | | | | | 1825 | 6° (2) |
| | | | | | 2075 | 5° (1) |
| | | | | | 2075 | 5-1/2° (2) |
| | | | | | 2100 | 5-1/2° (1) |
| | | | | | 2100 | 6-1/2° (2) |
| | | | | | 2365 | 5° (1) |
| | | | | | 2365 | 5-1/2° (2) |
| | | | | | 2450 | 6° (1) |
| | | | | | 2450 | 7° (2) |
| E-350 | 3505 | 138 | 4.9L (300 CID) I-6 | 3-Speed Manual | 2450 | 8° (2) |
| | | | | | 2850 | 6-1/2° (2) |
| | | | | | 2950 | 8-1/2° (2) |
| | | | | | 3235 | 7-3/4° (2) |
| | | | | | 3300 | 8-1/4° (2) |
| E-350 | 3505 | 138 | 4.9L (300 CID) I-6 5.8L (351 CID) V-8 6.6L (400 CID) V-8 7.5L (460 CID) V-8 | C-6 Auto. | 2450 | 6-1/2° (1) |
| | | | | | 2450 | 8° (2) |
| | | | | | 2850 | 5-1/2° (1) |
| | | | | | 2850 | 6-1/2° (2) |
| | | | | | 2950 | 7° (1) |
| | | | | | 2950 | 8-1/2° (2) |
| | | | | | 3235 | 6-1/2° (1) |
| | | | | | 3235 | 8° (2) |
| | | | | | 3300 | 7° (1) |
| | | | | | 3300 | 8° (2) |
| E-350 | 4013 | 158 | 5.8L (351 CID) V-8 6.6L (400 CID) V-8 7.5L (460 CID) V-8 | C-6 Auto. | 2450 | 6-1/4° (2) |
| | | | | | 2950 | 7° (2) |
| | | | | | 3235 | 6° (2) |
| | | | | | 3300 | 6-1/2° (2) |

(1) One-Piece Driveshaft. (2) Two-Piece Driveshaft.

Chassis — Drive Axles

SERVICE SPECIFICATIONS — CONT'D

Rear Axle Pinion Angles to Horizontal at Curb Load (Empty)

E-150 — E-350

| Model | Wheelbase | | Spring Rating At Pad (lbs) | Angle |
|-------|-----------|------|----------------------------|--------|
| | MM | Inch | | |
| E-150 | 3150 | 124 | 1250 | 2-1/2° |
| | | | 1450 | 3° |
| | | | 1685 | 3° |
| | | | 1750 | 3° |
| E-150 | 3505 | 138 | 1250 | 4° |
| | | | 1450 | 4-1/2° |
| | | | 1685 | 5° |
| | | | 1750 | 4-1/2° |
| E-250 | 3505 | 138 | 1785 | 4° |
| | | | 1825 | 4-1/2° |
| | | | 2075 | 4° |
| | | | 2100 | 4-1/2° |
| | | | 2365 | 3-1/2° |
| | | | 2450 | 5° |
| | | | 2700 | 5° |
| E-350 | 3505 | 138 | 2450 | 5° |
| | | | 2850 | 4° |
| | | | 2950 | 5° |
| | | | 3235 | 3-1/2° |
| | | | 3300 | 5° |
| | | | | |
| E-350 | 4013 | 158 | 2450 | 5° |
| | | | 2950 | 5° |
| | | | 3235 | 3-1/2° |
| | | | 3300 | 5° |
| | | | | |

Chassis — Drive Axles

SERVICE SPECIFICATIONS — CONT'D

Driveline Angles — Cont'd

Double Cardon Type U-Joint (Bronco Only)

Engine Angle to Horizontal — Bronco

| Model | Wheelbase | Engine | Transfer Case | Engine Angle |
|--------|-----------|-------------|---------------|--------------|
| Bronco | 104" | All Engines | Part Time | 5-1/2° |

Rear Driveshaft Angle to Horizontal — Bronco

| Model | Wheelbase | Engine | Transmission | Transfer Case | Curb Load Empty |
|--------|-----------|-------------|--------------|---------------|-----------------|
| Bronco | 104" | All Engines | Manual | Part Time | 12° |
| | 104" | All Engines | Automatic | Part Time | 12-1/2° |

Rear Axle Pinion Angle to Horizontal — Bronco

| Model | Spring Capacity at Pad | Spring Part No. 5560 | Curb Load Empty |
|--------|------------------------|----------------------|-----------------|
| Bronco | 1650# | EOTA-AZC | 12° |
| | 1390# | EOTA-AYB | 12° |

Chassis — Drive Axles

TORQUE SPECIFICATIONS

7.5 Inch Axle

| Description | Torque | |
|--|--------|-------|
| | N·m | Ft-Lb |
| Differential Bearing Cap Bolts | 95-115 | 70-85 |
| Differential Pinion Shaft Lock Bolt | 20-40 | 15-30 |
| Cover Bolts | 34-47 | 25-35 |
| Cover Bolt at Ratio Tag | 20-34 | 15-25 |
| Filler Plug | 20-41 | 15-30 |
| Drive Pinion Nut (1) | 230 | 170 |
| Driveshaft to Companion Flange (2) | 95-128 | 70-95 |
| Leaf Spring U-Bolt Nuts | 75-102 | 55-75 |
| Shock Absorber to Axle Bracket | 54-82 | 40-60 |
| Ring Gear Bolts — Conventional Differential (2) and Traction-Lok | 95-115 | 70-85 |
| Brake Backing Plate Bolts | 27-54 | 20-40 |

(1) See Drive Pinion Bearing Preload Specifications also.

(2) Coat bolt threads with Loctite (E0AZ-19554-B) or equivalent.

Chassis — Drive Axles

TORQUE SPECIFICATIONS — CONT'D

Traction-Lok Limited Slip Differential — Ranger

| Description | Torque | | | |
|--|--------|-------------------------------|-----|--------------------------|
| | N·m | Ft-Lb | N·m | Ft-Lb |
| Pinion Shaft Lock Bolt | 21-40 | 15-30 | | |
| Rotating Torque Required During Bench Check or in Vehicle with One Wheel on the Ground | | Original Plates 41 (30) | | New Plates 54 (30) |

8.8 Inch Conventional Axle

| Description | Torque | |
|---|-----------------|----------------|
| | N·m | Ft-Lb |
| Differential Bearing Cap Bolt — Inch | 95-115 | 70-85 |
| Differential Pinion Shaft Lock Bolt (1) | 20-40 | 15-30 |
| Ring Gear Attaching Bolts — Inch (1) | 95-115 | 70-85 |
| Rear Cover Screw | 34-47 | 25-35 |
| Oil Filler Plug | 20-40 | 15-30 |
| Brake Backing Plate Nuts — F-150 — E-250, F-250 (2) | 28-54 92-115 | 20-40 50-70 |
| Driveshaft to Axle Companion Flange | 9-20 | 8-15 |

(1) Using Loctite EOAZ-19554-B (or equivalent).

(2) 4050 lb. axle.

8.8 Inch Traction-Lok Axle

| Description | Torque | |
|---------------------------------------|--------|-------|
| | N·m | Ft-Lb |
| Differential Bearing Cap Bolt — Inch | 95-115 | 70-85 |
| Differential Pinion Shaft Lock Bolt | 20-40 | 15-30 |
| Ring Gear Attaching Bolts — Inch (1) | 95-115 | 70-85 |
| Rear Cover Screw | 34-47 | 25-35 |
| Oil Filler Plug | 20-40 | 15-30 |
| Brake Backing Plate Nuts F-150 | 28-54 | 20-40 |
| Brake Backing Plate Nuts F-250, E-250 | 68-95 | 50-70 |
| Driveshaft to Axle Companion Flange | 9-20 | 8-15 |

(1) Using Loctite (or equivalent)

Chassis — Drive Axles

TORQUE SPECIFICATIONS — CONT'D

9.0 Inch Axle

| Description | Torque | |
|---|---------|-------|
| | N·m | Ft-Lb |
| Pinion Retainer to Carrier Bolts | 41-60 | 30-45 |
| Ring Gear Attaching Bolts | 95-115 | 70-85 |
| Bearing Cap Bolts | 95-115 | 70-85 |
| Carrier to Housing Nuts | 34-54 | 25-40 |
| Adjusting Nut Lock Bolts | 17-33 | 12-25 |
| Axle Shaft Bearing Retainer Nut | 28-54 | 20-40 |
| N·m | | In-Lb |
| Pinion Bearing Preload — Original Bearing | 1.0-1.5 | 8-14 |
| Pinion Bearing Preload — New Bearing | 1.8-3.3 | 16-29 |

Dana Rear Axles

| Description | Axle Model | | | |
|--------------------------------|------------|---------|---------|---------|
| | 60, 61 | | 70, 70B | |
| N·m | Ft-Lb | N·m | Ft-Lb | |
| Pinion Shaft Nut | 339-366 | 250-270 | 339-366 | 250-270 |
| Differential Bearing Cap Bolts | 109-147 | 80-90 | 109-147 | 80-90 |
| Ring Gear Attaching Bolts | 136-163 | 100-120 | 136-163 | 100-120 |
| Differential Case Bolts | | | 75-107 | 55-75 |
| Oil Filler Plug | 28-40 | 20-30 | 28-40 | 20-30 |
| U-Joint Bolts | 21-27 | 15-20 | 21-27 | 15-20 |
| Cover to Housing Bolts | 41-54 | 30-40 | 41-54 | 30-40 |

Chassis — Drive Axles

TORQUE SPECIFICATIONS — CONT'D

Dana Front Drive Axle — Ranger (4x4)

| Description | Torque | |
|--|---------|---------|
| | N·m | Ft-Lb |
| Axle Pivot Bolt | 163-203 | 120-150 |
| Axle Pivot Bracket to Frame Nut | 95-124 | 70-92 |
| Axle Stud | 211-277 | 155-205 |
| Ball Joint Nut — Lower | 109 | 80 |
| Ball Joint Nut — Upper | 150 | 110 |
| Bearing Cap Bolts | 48-54 | 35-40 |
| Carrier to Axle Arm Bolts | 54-68 | 40-50 |
| Carrier Shear Bolt | 102-129 | 75-95 |
| Front Driveshaft U-Bolt Nuts | 11-20 | 8-15 |
| Lower Shock Absorber to Radius Arm Nut | 66-92 | 48-68 |
| Lower Spring Seat Nut | 95-135 | 70-100 |
| Radius Arm Bracket Front Bolt | 37-50 | 27-37 |
| Radius Arm Bracket Lower Bolt | 211-277 | 155-205 |
| Ring Gear Bolts | 68-81 | 50-60 |

Dana Front Drive Axle — F-150-350 (4x4), Bronco

| Description | Torque | |
|------------------------------------|------------------|------------------|
| | N·m | Ft-Lb |
| Bottom Ball Joint Nut | 122-149 | 90-110 |
| Top Ball Joint Nut | 135 (Minimum) | 100 (Minimum) |
| End Yoke Nut | 271-298 | 200-220 |
| Bearing Cap Bolts | 108-122 | 80-90 |
| Differential Retaining Bolts | 41-54 | 30-40 |
| Ring Gear Bolts | 61-81 | 45-60 |
| Support Arms Tabs to Carrier Bolts | 111-150 | 82-110 |

Chassis — Drive Axles

TORQUE SPECIFICATIONS — CONT'D

Driveshaft — Single Cardon U-Joint — Ranger (4x2)

| Description | N·m | (ft-lb) |
|-----------------------|--------|---------|
| Circular Flange Bolts | 95-130 | 70-95 |

Driveshaft — Double Cardon U-Joint — Ranger (4x4)

| Description | Torque |
|---|----------------------------|
| Driveshaft-to-Transfer Case Bolts | 16-20 N·m (12-15 ft-lb) |
| Driveshaft-to-Front and Rear Axle U-Bolt Nuts | 16-20 N·m (12-15 ft-lb) |

Driveshaft — Single Snap Ring U-Joint — E-, F-150-350, Bronco

| Description | Bolt Size | Torque Limits | |
|--|--|--|---|
| | | (ft-lb) | N·m |
| Bolt Yoke to Coupling Shaft | 5/8-18 3/4-16 7/8-14 1-20 | 148-164 (1) 175-240 250-300 160 | 201-222 (1) 238-325 339-406 216 |
| Nut-U-Joint Flange to Main and Auxiliary Input or Output Shaft | 1-20 1 1/4-18 1 1/2-18 1 1/2-16 | 90-130 350-420 380-470 425-525 | 123-176 475-569 516-637 577-711 |
| Nut-U-Joint — U-Bolt | 5/16-18 3/8-18 7/16-20 | 8-15 17-26 30-40 | 11-20 24-35 41-54 |
| Bolt and Nut — Parking Brake Drum to Universal Joint Flange | 3/8-24 7/16-20 1/2-20 | 37-50 37-49 58-78 55-75 10-115 | 51-67 51-66 79-105 75-101 136-155 |
| Coupling Shaft Center Bearing Bracket to Support | 7/16-20 | 37-54 | 51-73 |
| Bolt — Driveshaft U-Joint to Rear Yoke | 1/2-20 | 90-110 | 123-149 |
| Bolt and Nut — U-Joint Adapter to Rear Axle | 1/2-20 | 60-70 | 82-94 |

(1) Dana

Driveshaft — Double Cardon U-Joint — Bronco

| Nomenclature | Bolt Size and (ft-lb) |
|---|------------------------------|
| Driveshaft-to-Transfer Case Bolts | 5/16-24 20-28 (28-33 N·m) |
| Driveshaft-to-Front and Rear Axle U-Bolt Nuts | 5/16-18 8-15 (11-20 N·m) |

Powertrain — Clutch

CLUTCH IDENTIFICATION — RANGER, F-150-250, BRONCO

| | | Model/Engine/Clutch Usage | | |
|--|---|---|--|--|
| Specifications | | Ranger 2.0L I-4 [K] 2.3L I-4 [Z] 2.8L V-6 [S] (2) | F-150-250 (U/8500 lb.), Bronco 3.8L V-6 [Q] 4.9L I-6 [C] 5.0L V-8 [E] | F-250 (U/8500 lb.) W/4050 lb. [U] Cast Center Axle 5.8L V-8 [F] (1)(2) |
| D I S C A S S E M B L Y | Clutch Manufacturers | Daikin | Alma | Alma |
| | Disc Assy. — Part No. | E37A-FA | E3TA-KA | E3TA-KA |
| | Color Identification | None | 1 White | 1 White |
| | Type (W/Spring Vibr. Damp) | Segmented | Torsion Bend | Torsion Bend |
| | O.S. Diameter (Approx.) mm(in.) | 225 (9.0) | 254 (10.0) | 254 (10.0) |
| | I.S. Diameter (Approx.) mm(in.) | 150 (5.9) | 158 (6.25) | 158 (6.25) |
| | Facing Area Sq. cm (Sq. In.) | 441.2 (68.4) | 617.4 (95.7) | 617.4 (95.7) |
| | Facing Thickness (Ea.) mm(in.) | 3.80 (.149) | 3.45 (.136) | 3.45 (.136) |
| | Compressed Thickness mm (in.) | 8.40 (.330) | 8.12 (.320) | 8.12 (.320) |
| | Lining Material | Woven Non-Asbestos | F-201 Non-Asbestos | F-201 Non-Asbestos |
| P R E L S A S T U R E | Mfg. and Part No. | ASAHI-NC80 | — | — |
| | No. Torsion Springs & Color Code Identification | 2-Yellow 2-Plain | 5-Red-Inner 5-Black-Outer | 5-Red-Inner 5-Black-Outer |
| | Clutch Manufacturers | Daikin | Alma | Alma |
| | Pressure Plate — Part No. | E2TA-BC | E3TA-KA | E3TA-LA |
| | Color Code Ident. (Cover) | None | None | None |
| | Press. Spring Part No. | Belleville | Belleville | Belleville |
| | Quantity Required | One | One | One |
| | Color of Springs | — | — | — |
| | Load Per Spring — Lb. | — | — | — |
| Type (Plate) | | Belleville | Belleville | Belleville |
| TOTAL PLATE PRESS KG.(LB.) | | 499(1102) | 1202(2650) | 1202(2650) |

(1) E1TA-AB 279mm (11") Clutch Will Be Included on All 5.8L V-8 [F] Engine Applications Until 254mm (10") Hydraulic Clutch Becomes Available

(2) Hydraulic Clutch Controls

Powertrain — Clutch

CLUTCH IDENTIFICATION — F-150-350

| | | Model/Engine/Clutch Usage | | | |
|--------------------------------------|--|--|--|--|-------------------------------|
| Specifications | | F-150-350, Bronco (exc. 4050 lb. [U] Cast Center Axle 5.8L V-8 [F] (1) | F-250 H.D.-350 6.9L V-8 Diesel [R] (2) | F-250 H.D.-350 7.5L V-8 [U] (2) | |
| D I S C | Clutch Manufacturers | Borg & Beck/ Alma | Borg & Beck/ Alma | Alma | Alma |
| | Disc Assy. — Part No. | E1TA-CB | E1TA-AB | E3TA-ED | E3TA-PB |
| | Color Identification | 1 Blue | 1 Brown | 2 Orange | 2 Green |
| | Type (W/Spring Vibr. Damp) | Segmented | Segmented | One Piece | Segmented |
| | O.S. Diameter (Approx.) mm(in.) | 279 (11.0) | 279 (11.0) | 301 (11.875) | 301 (11.875) |
| | I.S. Diameter (Approx.) mm(in.) | 165 (6.5) | 165 (6.5) | 171 (6.75) | 171 (6.75) |
| | Facing Area Sq. cm (Sq. In.) | 798 (123.7) | 798 (123.7) | 967.5 (150.0) | 967.5 (150.0) |
| | Facing Thickness (Ea.) mm(in.) | 3.55 (.140) | 3.55 (.140) | 3.96 (.156) | 3.96 (.156) |
| A S S E M B L Y | Compressed Thickness mm(in.) | 8.12 (.320) | 8.12 (.320) | 8.40 (.330) | 8.40 (.330) |
| | Lining Material | Woven Asbestos | Woven Asbestos | F-201 Non-Asbestos | F-20 Non-Asbestos |
| | Mfg. and Part No. | Thermoid 146-CL | Th. A219X177 | Ferodo F-201 | Ferodo F-201 |
| | No. Torsion Springs & Color Code Identification | 5-Brown-Inner 5-Red-Outer | 5-Plain-Inner 5-Tan-Outer | 2-Yellow 4-White-Inner 4-Brown-Outer | 5-Plain-Inner 5-Pink-Outer |
| | Clutch Manufacturers | Borg & Beck Luk Inc. | Borg & Beck Luk Inc. | Alma | Alma |
| | Pressure Plate — Part No. | E1TA-BA | E1TA-BA | E3TA-DC | E3TA-DC |
| | Color Code Ident. (Cover) | None | None | 1-Pink, 1-Orange | 1-Pink, 1-Orange |
| | Press. Spring Part No. | Belleville | Belleville | Coil | Coil |
| P R E S S U R E | Quantity Required | One | One | One | One |
| | Color of Springs | — | — | — | — |
| | Load Per Spring — Lbs. | — | — | — | — |
| | Type (Plate) | Belleville | Belleville | Coil | Coil |
| | TOTAL PLATE PRESS KG. (LB.) | 1202 (2650) | 1202 (2650) | 980 (2160) | 980 (2160) |

(1) E1TA-AB 279mm (11") Clutch Will be Included on All 5.8L V-8 [F] Engine Applications Until 254mm (10") Hydraulic Clutch Becomes Available

(2) Hydraulic Clutch Controls

Powertrain — Clutch

CLUTCH IDENTIFICATION — E-150-350, F-150-350

1985 Clutch Chart

| | | ★ENGINE/CLUTCH USAGE | |
|--|--|--|--|
| Specifications | | 2.0L I-4 [K] 2.3L I-4 [Z] 2.8L V-6 [S] | ★4.9L I-6 [C] 5.0L V-8 [E] 5.8L V-8 [F] (U/8500 lbs. GVWR) |
| DISC ASSEMBLY: | | | |
| Clutch Manufacturer | | Daikin | Alma |
| Disc Assembly — Part No. | | E37A-FB | E4TA-DB |
| Color Identification | | None | 2 Bronze |
| Type (W/Spring Vibration Damper) | | Segmented | Torsion Bend |
| O.S. Diameter (Approx.) mm(in.) | | 225 (9.0) | 254 (10.0) |
| I.S. Diameter (Approx.) mm(in.) | | 150 (5.9) | 158 (6.25) |
| Facing Area Sq. cm (Sq. In.) | | 441.2 (68.4) | 617.4 (95.7) |
| Facing Thickness (Ea.) mm(in.) | | 3.08 (1.49) | 3.45(1.36) |
| Compressed Thickness mm(in.) | | 8.40 (.330) | 8.13 (.320) |
| Lining Material | | Woven Non-Asbestos | Woven Non-Asbestos |
| Manufacturers Part No. | | ASAHI-NC80 | Ferodo F-202 |
| No. Torsion Spring & Color Code Identification | | 2-Yellow 2-Plain | 5-Red-Inner 5-Black-Outer |
| PRESSURE PLATE: | | | |
| Clutch Manufacturer | | Daikin | Alma |
| Pressure Plate — Part No. | | E2TA-BE | E4TA-DA |
| Color Code Identification (Cover) | | None | 1-Green |
| Pressure Spring | | Belleville | Belleville |
| Quantity Required | | One | One |
| Type (Plate) | | Belleville | Belleville |
| Total Plate Pressure Kg. (lbs.) | | 499 (1102) | 873 (1925) |
| ★HYDRAULIC ACTUATION: | | | |
| Control Assy. Part No. | | E2TA-AK(1) | E4TA-CA(2) |

(1) E47A-AE W/2.8L V-6 [S] (Part Nos. Revised Per PCR 899969-1).

(2) E4UA-BB W/Econoline

Powertrain — Clutch

CLUTCH IDENTIFICATION — E-150-350, F-150-350 — CONT'D

1985 Clutch Chart — Cont'd

| Specifications | ★ENGINE/CLUTCH USAGE | | |
|--|--|--------------------------------|--------------------------------|
| | ★4.9L I-6 [C] 5.8L V-8 [F] (0/8500 lbs. GVWR) | ★6.9L V-8 Diesel [R] | ★7.5L V-8 [U] |
| DISC ASSEMBLY: Clutch Manufacturer | Luk | Luk | Luk |
| Disc Assembly — Part No. | E4TA-EA | E4TA-FA | E4TA-EA |
| Color Identification | None | None | None |
| Type (W/Spring Vibration Damper) | Segmented | Segmented | Segmented |
| O.S. Diameter (Approx.) mm(in.) | 279 (11.0) | 279 (11.0) | 279 (11.0) |
| I.S. Diameter (Approx.) mm(in.) | 165 (6.5) | 165 (6.5) | 165 (6.5) |
| Facing Area Sq. cm (Sq. In.) | 798 (123.7) | 798 (123.7) | 798 (123.7) |
| Facing Thickness (Ea.) mm(in.) | 3.65 (.144) | 3.65(.144) | 3.65(.144) |
| Compressed Thickness mm(in.) | 8.13 (.320) | 8.13 (.320) | 8.13 (.320) |
| Lining Material | Woven Non-Asbestos | Woven Non-Asbestos | Woven Non-Asbestos |
| Manufacturers Part No. | Ferodo F-202 | Ferodo F-202 | Ferodo F-202 |
| No. Torsion Spring & Color Code Identification | 5-Plain-Inner 5-Plain-Outer | 5-Plain-Inner 5-Plain-Outer | 5-Plain-Inner 5-Plain-Outer |
| PRESSURE PLATE: Clutch Manufacturer | Luk | Valeo | Valeo |
| Pressure Plate — Part No. | E4TA-BA | E4TA-EB | E4TA-EB |
| Color Code Identification (Cover) | None | 1-Green | 1-Green |
| Pressure Spring | Belleville | Belleville | Belleville |
| Quality Required | One | One | One |
| Type (Plate) | Belleville | Belleville | Belleville |
| Total Plate Pressure Kg. (lbs.) | 778 (1715) | 957 (2110) | 957 (2110) |
| ★HYDRAULIC ACTUATION: Control Assy. Part No. | E4TA-CA(2) | E3TA-FA | E3TA-FA |

(1) E47A-AE W/2.8L V-6 [S] (Part Nos. Revised Per PCR 899969-1).

(2) E4UA-BB W/Econoline

CLUTCH PEDAL FREE TRAVEL(1)

| Models | Free Travel |
|-----------------------|---------------------------|
| E-150 — E-350 | 12.7-50.8 mm (1/2-2 Inch) |
| F-150 — F-350, Bronco | 12.7-50.8 mm (1/2-2 Inch) |

(1) Ranger (All Models) and F-250/350 with 6.9L diesel and 7.5L gasoline engines have hydraulic clutch systems, which have no free travel adjustment.

Powertrain — Clutch

SERVICE SPECIFICATIONS — ALL VEHICLES

| | |
|-------------------|-----------------------------|
| Face Runout | 0.254mm (0.010 inch) (max.) |
| Bore Runout..... | 0.381mm (0.015 inch) (max.) |

Torque Specifications

Clutch and Linkage

Ranger

| Description | Torque | |
|--|---------|---------|
| | N·m | Ft-Lbs |
| Clutch Housing to Engine Block Bolt | 38-51 | 28-38 |
| Clutch Housing to Transmission Nut | 41-54 | 30-40 |
| Pressure Plate to Flywheel Bolt | 21-32 | 15-24 |
| Crossmember to Right Frame Nut | 150-189 | 110-140 |
| Crossmember to Left Frame Nut — All Except 2.3L (Ranger 4x4) | 150-189 | 110-140 |
| Crossmember to Left Frame Nut — 2.3L (Ranger 4x4) Only | 102-129 | 75-95 |
| Insulator to Crossmember — All Except 2.8L | 97-127 | 71-94 |
| Insulator to Crossmember — 2.8L Only | 97-127 | 71-94 |
| Insulator to Transmission | 81-108 | 60-80 |
| Driveshaft to Companion Flange | 95-130 | 70-95 |
| Starter to Clutch Housing | 21-27 | 15-20 |

Clutch — E-150-350; Bronco, F-150-350

(Except F-250 M.D., F-350 With 6.9L Diesel and 7.5L Engines)

| Description | Torque | |
|---|--------|--------|
| | N·m | Ft-Lbs |
| Clutch Housing to Rear Engine Cover Plate | 55-67 | 40-50 |
| Clutch Release Lever Seat to Housing Screws | 17-24 | 12-18 |
| Pressure Plate and Cover Assembly to Flywheel Bolt #387299 | 27-39 | 20-29 |
| Bolt #382087 | 21-27 | 15-20 |
| Rear Engine Cover Plate to Housing Bolt (Except F-Series 5.8L(M)/6.6L) | 17-23 | 12-17 |
| F-Series 5.8L(M)/6.6L | 27-39 | 20-29 |
| Clutch Housing Bracket Stud (F-Series, Bronco 4.9L Only) | 21-27 | 15-20 |

Powertrain — Clutch

TORQUE SPECIFICATIONS — CONT'D

Clutch — Warner T-19B and T19D Four-Speed Transmission

| Transmission | N·m | Ft-Lb |
|---|---------|--------|
| Transmission to Flywheel Housing | 51-56 | 37-42 |
| Gear Shift Housing to Case | 34-47 | 25-35 |
| Speedometer Cable Retainer to Output Shaft Bearing Retainer | 4.5-6 | 3-4.5 |
| Output Shaft Bearing Retainer to Case | 48-61 | 34-45 |
| Flywheel Housing to Engine | 55-67 | 40-50 |
| Filler Plug | 34-54 | 25-40 |
| Drain Plug | 34-54 | 25-40 |
| Output Shaft Flange Nut | 102-149 | 75-115 |
| Countershaft and Reverse Idler Shaft Retainer Bolt | 34-47 | 25-35 |
| Power Take Off Cover | 34-47 | 25-35 |
| Input Shaft Bearing Retainer | 21-33 | 15-25 |

Clutch Linkage — Ford 3.03 Three-Speed Transmission

| Item | Torque | |
|--|--------|---------|
| | Ft-Lb | N·m |
| Input Shaft Gear Bearing Retainer to Transmission Gear | 30-36 | 41-48 |
| Transmission to Flywheel Housing | 42-50 | 57-67 |
| Transmission Cover to Transmission Case | 20-25 | 28-33 |
| Speedometer Cable Retainer to Transmission Extension | 3-4.5 | 4.7-6.5 |
| Transmission Extension to Transmission Case | 42-50 | 57-67 |
| Flywheel Housing to Engine | 40-50 | 55-67 |
| Back-Up Lamp Switch | 8-12 | 11-16 |

Powertrain — Clutch

TORQUE SPECIFICATIONS — CONT'D

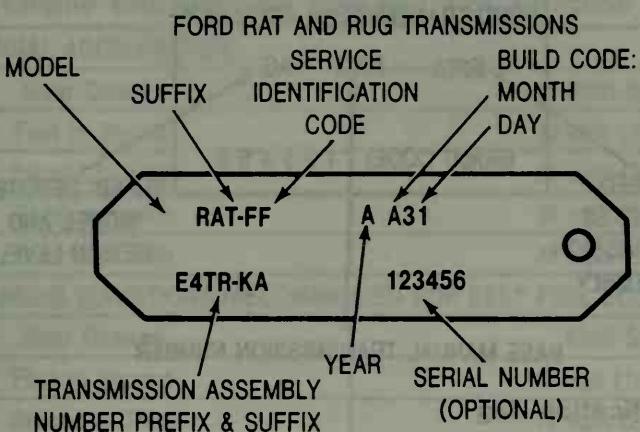
Clutch Linkage — Warner T-18 Four-Speed Transmission

| Description | Size | Torque Limits | |
|---|---------|---------------|---------|
| | | Ft-Lb | N·m |
| Back-Up Light Switch | 9/16-18 | 15-25 | 20-47 |
| Clutch Housing to Transmission Mounting Bolts | 7/16-14 | 35-50 | 47-67 |
| Case Cover | 3/8-16 | 25-35 | 34-47 |
| Countershaft Rear Retainer | 3/8-16 | 25-35 | 34-47 |
| Drain Plug | 3/4-14 | 25-40 | 34-54 |
| Filler Plug | 3/4-14 | 25-40 | 34-54 |
| Output Shaft Flange Nut | 3/4-20 | 75-110 | 102-149 |
| Mainshaft Rear Retainer | 3/8-16 | 25-35 | 34-47 |
| | 1/2-13 | 40-50 | 54-67 |
| P.T.O. Cover Bolt | 3/8-16 | 25-35 | 34-47 |
| Reverse Idler Shaft/Countershaft Locking Bolt | 3/8-16 | 25-35 | 34-47 |
| Front Bearing Retainer to Case | 5/16-18 | 10-15 | 14-20 |
| Clutch Housing to Engine Block | 7/16-14 | 40-50 | 54-67 |

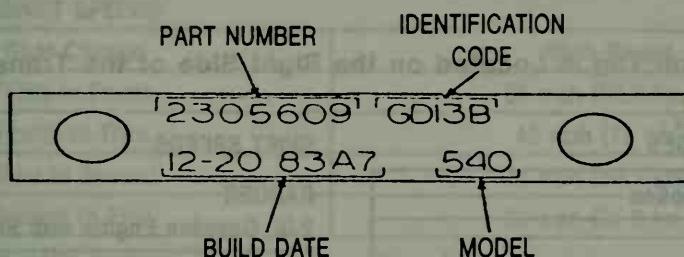
Powertrain — Manual Transmission

IDENTIFICATION — ALL VEHICLES

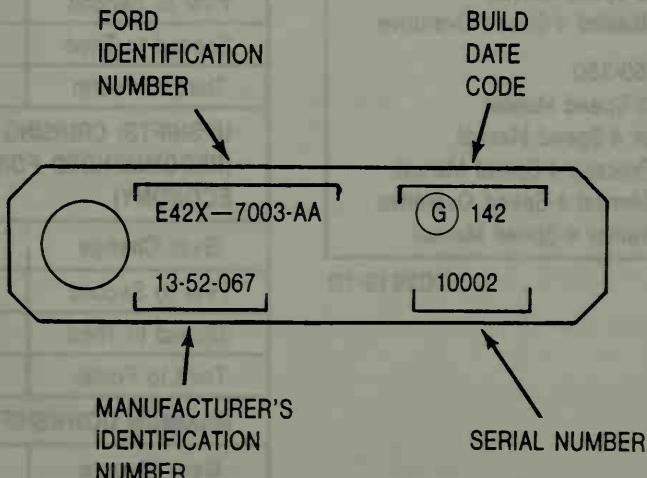
Identification Tags:



Transmission Identification Tag — 3-Speed Manual



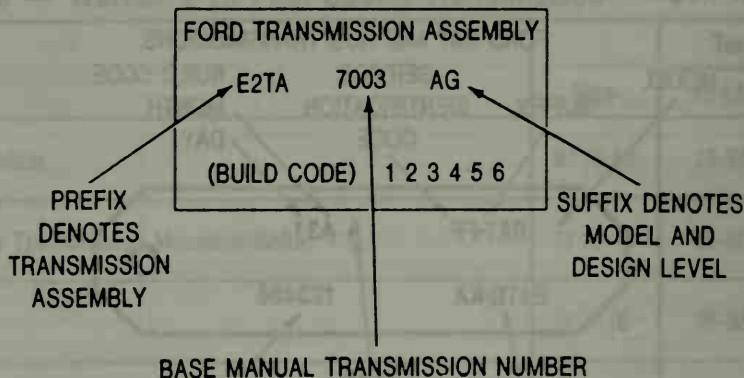
Transmission Identification Tag — Warner Manual Transmissions and New Process Transmissions



Transmission Identification Tag — Warner Manual Transmissions

Powertrain — Manual Transmission

IDENTIFICATION — ALL VEHICLES — CONT'D



Transmission Identification Tag

The Identification Tag is Located on the Right Side of the Transmission Case at the Front.

TRANSMISSION CODES

| Code | Description |
|------------------------|-------------------------------------|
| Ranger | |
| 4 | 4-Speed Manual |
| Econoline — Club Wagon | |
| C | Ford 3-Speed Manual |
| B | Ford Manual 4-Speed Overdrive |
| Bronco — F-150-350 | |
| C | Ford 3-Speed Manual |
| F | Warner 4-Speed Manual |
| A | New Process 4-Speed Manual |
| B | Ford Manual 4-Speed Overdrive |
| P | T19-Warner 4-Speed Manual |

CC3619-1D

SHIFT SPEEDS

RANGER

2.0L Gasoline Engine with Standard Axle

UPSHIFTS: NORMAL ACCELERATION

| Gear Change | Shift Speed |
|-----------------|------------------|
| First to Second | 15 mph (24 km/h) |
| Second to Third | 29 mph (46 km/h) |
| Third to Fourth | 38 mph (61 km/h) |

UPSHIFTS: CRUISING CONDITIONS (RECOMMENDED FOR BEST FUEL ECONOMY)

| Gear Change | Shift Speed |
|-----------------|------------------|
| First to Second | 12 mph (19 km/h) |
| Second to Third | 22 mph (35 km/h) |
| Third to Fourth | 33 mph (53 km/h) |

MAXIMUM DOWNSHIFT SPEEDS

| Gear Change | Shift Speed |
|-----------------|--------------------|
| Fourth to Third | 55 mph (88.5 km/h) |
| Third to Second | 35 mph (56.3 km/h) |
| Second to First | 20 mph (32.2 km/h) |

Powertrain — Manual Transmission

SHIFT SPEEDS — CONT'D

Ranger

2.0L Gasoline Engine with Optional Axle and 2.3L Gasoline Engine All Axles

| UPSHIFTS: NORMAL ACCELERATION | |
|-------------------------------|------------------|
| Gear Change | Shift Speed |
| First to Second | 12 mph (19 km/h) |
| Second to Third | 23 mph (37 km/h) |
| Third to Fourth | 30 mph (48 km/h) |
| *Fourth to Fifth | 42 mph (67 km/h) |

| UPSHIFTS: CRUISING CONDITIONS (RECOMMENDED FOR BEST FUEL ECONOMY) | |
|---|------------------|
| Gear Change | Shift Speed |
| First to Second | 9 mph (14 km/h) |
| Second to Third | 17 mph (27 km/h) |
| Third to Fourth | 26 mph (42 km/h) |
| *Fourth to Fifth | 36 mph (58 km/h) |

| MAXIMUM DOWNSHIFT SPEEDS | |
|--------------------------|--------------------|
| Gear Change | Shift Speed |
| *Fifth to Fourth | 55 mph (88.5 km/h) |
| Fourth to Third | 45 mph (72 km/h) |
| Third to Second | 35 mph (56.3 km/h) |
| Second to First | 20 mph (32.2 km/h) |

* When equipped with manual 5-speed overdrive transmission.

Powertrain — Manual Transmission

SHIFT SPEEDS — CONT'D

Ranger 4x4

| UPSHIFTS: NORMAL ACCELERATION | | |
|-------------------------------|----------------------|------------------|
| Gear Change | 2H or 4H Shift Speed | 4L Shift Speed |
| First to Second | 13 mph (21 km/h) | 5 mph (8 km/h) |
| Second to Third | 24 mph (38 km/h) | 10 mph (15 km/h) |
| Third to Fourth | 32 mph (51 km/h) | 13 mph (21 km/h) |
| Fourth to Fifth | 45 mph (72 km/h) | 18 mph (29 km/h) |

| UPSHIFTS: CRUISING CONDITIONS (RECOMMENDED FOR BEST FUEL ECONOMY) | | |
|---|----------------------|------------------|
| Gear Change | 2H or 4H Shift Speed | 4L Shift Speed |
| First to Second | 10 mph (16 km/h) | 4 mph (6 km/h) |
| Second to Third | 18 mph (28 km/h) | 7 mph (12 km/h) |
| Third to Fourth | 28 mph (45 km/h) | 11 mph (18 km/h) |
| Fourth to Fifth | 38 mph (61 km/h) | 15 mph (25 km/h) |

| MAXIMUM DOWNSHIFT SPEEDS | | |
|--------------------------|----------------------|------------------|
| Gear Change | 2H or 4H Shift Speed | 4L Shift Speed |
| Fifth to Fourth | 55 mph (88.5 km/h) | 22 mph (35 km/h) |
| Fourth to Third | 45 mph (72 km/h) | 18 mph (28 km/h) |
| Third to Second | 35 mph (56.3 km/h) | 14 mph (22 km/h) |
| Second to First | 20 mph (32.2 km/h) | 8 mph (12 km/h) |

Powertrain — Manual Transmission

SHIFT SPEEDS — CONT'D

F-150-350

3-Speed Manual Transmission

| Upshifts When Accelerating** | | |
|------------------------------|---------------------|---------------------|
| Shift from | Shift Schedule | |
| | Part Throttle | Full Throttle |
| FIRST to SECOND | 15 MPH (24 km/h) | 30 MPH (48 km/h) |
| SECOND to THIRD | 25 MPH (40 km/h) | 45 MPH (72 km/h) |

| Maximum Downshift Speed* | |
|--------------------------|------------------------|
| Shift from | Maximum Shift Schedule |
| THIRD to SECOND | 40 MPH (64 km/h) |
| SECOND to FIRST | 20 MPH (32 km/h) |

F-150-350

4-Speed Manual Transmission: Without Overdrive

| Upshifts When Accelerating** | | |
|------------------------------|------------------------|---------------------|
| Shift from | Transfer Case Position | |
| | 2H or 4H | 4L |
| FIRST to SECOND** | 10 MPH (16 km/h) | 4 MPH (6 km/h) |
| SECOND to THIRD | 15 MPH (24 km/h) | 6 MPH (10 km/h) |
| THIRD to FOURTH | 25 MPH (40 km/h) | 10 MPH (16 km/h) |

| Maximum Downshift Speeds | | |
|--------------------------|------------------------|---------------------|
| Shift from | Transfer Case Position | |
| | 2H or 4H | 4L |
| FOURTH to THIRD | 55 MPH (88 km/h) | 21 MPH (39 km/h) |
| THIRD to SECOND | 30 MPH (48 km/h) | 11 MPH (18 km/h) |
| SECOND to FIRST | 0 MPH (0 km/h) | 0 MPH (0 km/h) |

*Downshift at lower speeds when driving on slippery surfaces.

**If your vehicle is equipped with an Upshift Indicator, shift at speeds indicated when engine is warmed up.

Powertrain — Manual Transmission

SHIFT SPEEDS — CONT'D

F-150-350

4-Speed Overdrive Manual Transmission

| Upshifts When Accelerating** | |
|------------------------------|------------------|
| Shift from | At this speed |
| FIRST to SECOND | 15 MPH (24 km/h) |
| SECOND to THIRD | 25 MPH (40 km/h) |
| THIRD to OVERDRIVE | 40 MPH (64 km/h) |

| Maximum Downshift Speeds* | |
|---------------------------|------------------------|
| Shift from | At or below this speed |
| OVERDRIVE to THIRD | 55 MPH (88 km/h) |
| THIRD to SECOND | 35 MPH (56 km/h) |
| SECOND to FIRST | 20 MPH (32 km/h) |

*Downshift at lower speeds when driving on slippery surfaces.

**If your vehicle is equipped with an Upshift Indicator, shift at speeds indicated when engine is warmed up.

Bronco

4-Speed Manual Transmissions: Without Overdrive

| Upshifts When Accelerating | | |
|----------------------------|------------------------|------------------|
| Shift from | Transfer Case Position | |
| | 2H or 4H | 4L |
| FIRST to SECOND** | 10 MPH (16 km/h) | 4 MPH (6 km/h) |
| SECOND to THIRD | 15 MPH (24 km/h) | 6 MPH (10 km/h) |
| THIRD to FOURTH | 25 MPH (40 km/h) | 10 MPH (16 km/h) |

| Maximum Downshift Speeds | | |
|--------------------------|------------------------|------------------|
| Shift from | Transfer Case Position | |
| | 2H or 4H | 4L |
| FOURTH to THIRD | 55 MPH (88 km/h) | 21 MPH (34 km/h) |
| THIRD to SECOND | 30 MPH (48 km/h) | 11 MPH (18 km/h) |
| SECOND to FIRST | 0 MPH (0 km/h) | 0 MPH (0 km/h) |

**Driving from a standing position in SECOND gear is recommended in moving a vehicle with a manual 4-speed transmission unless the vehicle has a significant load or is on a significant grade, in which case FIRST gear should be used.

Powertrain — Manual Transmission

SHIFT SPEEDS — CONT'D

Bronco II — 2.8L Engine

4-Speed Overdrive Manual Transmission

| UPSHIFTS: NORMAL ACCELERATION | | |
|---|----------------------|------------------|
| Gear Change | 2H or 4H Shift Speed | 4L Shift Speed |
| First to Second | 15 mph (24 km/h) | 6 mph (9 km/h) |
| Second to Third | 25 mph (40 km/h) | 10 mph (16 km/h) |
| Third to Fourth | 40 mph (64 km/h) | 16 mph (25 km/h) |
| *Fourth to Fifth | 45 mph (72 km/h) | 18 mph (28 km/h) |
| UPSHIFTS: CRUISING CONDITIONS (RECOMMENDED FOR BEST FUEL ECONOMY) | | |
| Gear Change | 2H or 4H Shift Speed | 4L Shift Speed |
| First to Second | 15 mph (24 km/h) | 6 mph (9 km/h) |
| Second to Third | 20 mph (32 km/h) | 8 mph (13 km/h) |
| Third to Fourth | 29 mph (46 km/h) | 11 mph (18 km/h) |
| *Fourth to Fifth | 45 mph (72 km/h) | 18 mph (28 km/h) |
| MAXIMUM DOWNSHIFT SPEEDS | | |
| Gear Change | 2H or 4H Shift Speed | 4L Shift Speed |
| *Fifth to Fourth | 55 mph (88 km/h) | 22 mph (35 km/h) |
| Fourth to Third | 45 mph (72 km/h) | 18 mph (28 km/h) |
| Third to Second | 35 mph (56 km/h) | 14 mph (22 km/h) |
| Second to First | 20 mph (32 km/h) | 8 mph (12 km/h) |

*When equipped with manual 5-speed overdrive transmission.

E-150-350

3-Speed Manual Transmission

| Upshifts When Accelerating | | |
|----------------------------|------------------|------------------|
| Shift from | At Part Throttle | At Full Throttle |
| FIRST to SECOND | 15 MPH (24 km/h) | 30 MPH (48 km/h) |
| SECOND to THIRD | 25 MPH (40 km/h) | 45 MPH (72 km/h) |

| Maximum Downshift Speed* | |
|--------------------------|------------------|
| Downshift from | At or below |
| THIRD to SECOND | 40 MPH (64 km/h) |
| SECOND to FIRST | 20 MPH (32 km/h) |

*Downshift at lower speeds when driving on slippery surfaces.

Powertrain — Manual Transmission

SHIFT SPEEDS — CONT'D

E-150-350

4-Speed Overdrive Manual Transmission

| Upshifts When Accelerating | |
|----------------------------|------------------|
| Upshift from | At this speed |
| FIRST to SECOND | 15 MPH (24 km/h) |
| SECOND to THIRD | 25 MPH (40 km/h) |
| THIRD to OVERDRIVE | 40 MPH (64 km/h) |

| Maximum Downshift Speeds* | |
|---------------------------|------------------|
| Downshift from | At or below |
| OVERDRIVE to THIRD | 55 MPH (88 km/h) |
| THIRD to SECOND | 35 MPH (56 km/h) |
| SECOND to FIRST | 20 MPH (32 km/h) |

*Downshift at lower speeds when driving on slippery surfaces.

Powertrain — Manual Transmission

GEAR RATIOS — ALL VEHICLES

Major Transmission Specifications

Gear Ratio [To 1]

(See Individual Truck Section for Availability)

| Gear | 3-Speed Manual | | | 4-Speed Manual | | | | |
|---------|----------------|--------------|------------------------------|----------------|------------|--------------------|-------------|------|
| | Econoline Van | F-Series | | Ranger (2) | Ranger (2) | F-Series & Bronco | | |
| | | 4.9L I-6 (1) | 4.9L I-6 (w/2.47 Axle Ratio) | 2.3L I-4 | | New Process 435(2) | Warner T-18 | |
| | | 5.0L V-8 | | 2.8L I-4 | | | Warner T-19 | |
| 1st | 3.26 | 3.26 | 2.99 | 3.96 | 4.32 | 6.69 | 6.32 | 5.11 |
| 2nd | 1.91 | 1.91 | 1.75 | 2.08 | 2.46 | 3.34 | 3.09 | 3.03 |
| 3rd | 1.00 | 1.00 | 1.00 | 1.39 | 1.51 | 1.79 | 1.68 | 1.79 |
| 4th | — | — | — | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| 5th | — | — | — | — | — | — | — | — |
| Reverse | 3.46 | 3.46 | 3.17 | 3.39 | 3.39 | 8.26 | 7.44 | 5.63 |

| Gear | 4-Speed Manual Overdrive | | | 5-Speed Manual Overdrive | | Automatic | | |
|----------------------------|----------------------------|-------------------|--------------|--------------------------|------------|-------------------|---|--------------------------------------|
| | | | | 3-Speed | | 4-Speed Overdrive | | |
| | Econoline Van & Club Wagon | Bronco, F-150/250 | | Ranger, Bronco II | Ranger 4x2 | Ranger 4x2 | Ranger 4x4, F-Series, Bronco, Econoline Van & Club Wagon, Bronco II | F-Series, Econoline Van & Club Wagon |
| Econoline Van & Club Wagon | | 4.9L I-6 (3) | 4.9L I-6 (4) | 2.0L I-4 | Ranger 4x2 | Ranger 4x2 | Ranger 4x4, F-Series, Bronco, Econoline Van & Club Wagon, Bronco II | F-Series, Econoline Van & Club Wagon |
| 1st | 3.25 | 3.25 | 3.01 | 3.96 | 2.26 | 2.47 | 2.46 | 2.40 |
| 2nd | 1.92 | 1.92 | 1.78 | 2.08 | 2.40 | 1.47 | 1.46 | 1.46 |
| 3rd | 1.00 | 1.00 | 1.00 | 1.39 | 1.51 | 1.00 | 1.00 | 1.00 |
| 4th | .78 | .71 | .72 | 1.00 | 1.00 | — | — | .66 |
| 5th | — | — | — | .84 | .87 | — | — | — |
| Reverse | 3.25 | 3.25 | 3.01 | 3.39 | 4.02 | 2.11 | 2.18(5) | 2.00 |

(1) Used with all axle ratios except 2.47.

(2) Not available with PTO installation.

(3) Used with all axle ratios except 2.47 and 3.00.

(4) Used only with 2.47 axle ratio.

(5) 3.19 with some (LPO) automatic transmissions for use with 4.9L I-6 and 5.0L V-8 engines.

Powertrain — Manual Transmission

SERVICE SPECIFICATIONS

Ranger — Gasoline Engines

4-Speed Transmission Inspection Standards

| Component | Tolerance | |
|---|-----------|-------------|
| | Inches | Millimeters |
| Mainshaft Runout Not to Exceed | 0.0012 | 0.03 |
| Shift Fork Shaft to Control Lever Not to Exceed | 0.031 | 0.8 |
| Shift Fork to Clutch Sleeve Not to Exceed | 0.020 | 0.5 |
| Synchronizer Ring to Conical Face of Gear | 0.031 | 0.8 |

4-Speed Transmission Assembly Standards

| Component | Tolerance | |
|--|-------------|-------------|
| | Inches | Millimeters |
| Mainshaft Thrust Play — Difference between the depth of mainshaft bore in bell housing and the mainshaft height in case. | 0-0.0039 | 0-0.1 |
| Countershaft Thrust Play — Difference between the depth of countershaft bearing bore and bearing height. | 0-0.0039 | 0-0.1 |
| Third Speed Synchronizer Key to Synchronizer Ring Slot — Transmission partly assembled. Transmission third gear. (Gasoline Engines Only) | 0.026-0.079 | 0.66-2.0 |
| Mainshaft Ring Bearing — Clearance between thrust washer and snap ring. Transmission partly assembled. | 0-0.0039 | 0-0.1 |

3.03 3-Speed Transmission

Adjustments

| Transmission | Inch | mm |
|------------------------------|-------------|-------------|
| End Play — Reverse Idler | 0.004-0.018 | 0.102-0.457 |
| End Play — Countershaft Gear | 0.004-0.018 | 0.102-0.457 |

Warner T-18 4-Speed Transmission Adjustments

Second Speed Gear End Play 0.127-0.609mm
(0.005-0.024 inch)

New Process 435 4-Speed Transmission Adjustments

Third/Fourth Speed Synchronizer Clearance 1.77-2.41mm
(0.070-0.095 inch)

Input Shaft End Play 0.177-0.355mm
(0.007-0.014 inch)

Powertrain — Manual Transmission

SERVICE SPECIFICATIONS — CONT'D

Ranger — Gasoline Engines

5-Speed Transmission Inspection Standards

| Component | Tolerance | |
|---|-----------|-------------|
| | Inches | Millimeters |
| Mainshaft Runout Not To Exceed | 0.0012 | 0.3 |
| Shift Fork Shaft To Control Lever Not To Exceed | 0.031 | 0.8 |
| Shift Fork To Clutch Sleeve Not To Exceed | 0.020 | 0.5 |
| Synchronizer Ring To Conical Face of Gear Not To Exceed | 0.031 | 0.8 |

Ranger — Gasoline Engine

5-Speed Transmission Assembly Standards

| Component | Tolerance | |
|--|-------------|-------------|
| | Inches | Millimeters |
| Mainshaft Thrust Play — Difference between the depth of mainshaft bore in bell housing and the mainshaft bearing height in case. | 0-0.0039 | 0-0.1 |
| Countershaft Thrust Play — Difference between the depth of countershaft bearing bore and bearing height. | 0-0.0039 | 0-0.1 |
| Countershaft Rear Bearing — Clearance between snap ring and rear bearing. | 0-0.0059 | 0-0.15 |
| Third Speed Synchronizer Key to Synchronizer Ring Slot — Transmission partly assembled. Transmission third gear. | 0.026-0.079 | 0.66-2.0 |
| Mainshaft Ring Bearing — Clearance between thrust washer and snap ring. Transmission partly assembled. | 0-0.0039 | 0-0.1 |

Powertrain — Manual Transmission

SERVICE SPECIFICATIONS — CONT'D

Single Rail Overdrive Four-Speed Transmission Adjustments

| | |
|----------------------------------|----------------------------------|
| First Gear End Play..... | 0.127-0.609mm (0.005-0.024 inch) |
| Second Gear End Play..... | 0.076-0.533mm (0.003-0.021 inch) |
| OD Gear End Play..... | 0.228-0.584mm (0.009-0.023 inch) |
| Countershaft Gear End Play | 0.601-0.457mm (0.004-0.018 inch) |

NOTE: When measuring end play in an assembled transmission, output shaft end play must be subtracted from measured gear end play to obtain actual gear end play.

Four Speed Overdrive

Transmission Component End Play

| Component | Tolerance | |
|----------------------------|-----------|-------------|
| | Inches | Millimeters |
| Cluster Gear to Case | .004-.018 | .101-.457 |
| Reverse Idler Gear to Case | .004-.018 | .101-.457 |

Torque Specifications

Ranger — Gasoline Engines

Four Speed Transmission

| Attachment | Torque | |
|--|--------------------|--------------------|
| | ft-lb | N·m |
| Cap — Shift Rail Detent Spring | 29-43 | 40-58 |
| Nut — Main Shaft Gear Retaining — Gasoline Engine — Diesel Engine | 145-203 116-174 | 197-275 160-240 |
| Pivot — Clutch Release Lever | 23-34 | 32-46 |
| Plug — Interlock Pin Bore (Gasoline Engines Only) | 7.5-11.0 | 11-14 |
| Plug — Drain | 29-43 | 40-58 |
| Plug — Filler | 18-29 | 25-39 |
| Switch — Back-Up Lamp | 22-29 | 30-39 |
| Bolt — Control Lever End to Control Lever (Diesel Engine Only) | 20-25 | 28-34 |
| Nut/Bolt Size | | |
| 6 mm | 5-7.5 | 7-11 |
| 8 mm | 12-17 | 17-23 |
| 10 mm | 23-34 | 32-45 |
| 12 mm | 41-59 | 56-79 |

Powertrain — Manual Transmission

TORQUE SPECIFICATIONS — CONT'D

E, F-150-350, Bronco General Transmission Service

| Description | Size | Torque Limits | |
|---------------------------|---------|---------------|---------|
| | | (ft-lb) | N·m |
| U-Joint Flange Nut | 1.00-20 | 110-150 | 150-203 |
| Transmission Output Shaft | 1.25-18 | 350-420 | 475-569 |

Unless otherwise specified, the following torque ranges are to be used for fitting or fastener diameters as indicated.

| Bolt or Nut Size (in) | Torque Limits | |
|-----------------------|---------------|----------|
| | (in-lb) | N·m |
| 1/4 | 85-115 | 9.7-12.5 |
| | (ft-lb) | |
| 5/16 | 12-17 | 17-23 |
| 3/8 | 31-42 | 43-56 |
| 7/16 | 50-70 | 68-94 |
| 1/2 | 75-105 | 102-142 |
| 9/16 | 110-150 | 150-203 |
| 5/8 | 150-205 | 204-277 |
| 3/4 | 220-300 | 299-406 |
| 7/8 | 360-480 | 489-650 |
| 1.0 | 540-730 | 733-989 |

3.03 Three Speed Transmission

| Item | Torque | |
|--|---------|---------|
| | (ft-lb) | N·m |
| Input Shaft Gear Bearing Retainer to Transmission Case | 30-36 | 41-48 |
| Transmission to Flywheel Housing | 42-50 | 57-67 |
| Transmission Cover to Transmission Case | 20-25 | 28-33 |
| Speedometer Cable Retainer to Transmission Extension | 3-4.5 | 4.7-6.5 |
| Transmission Extension to Transmission Case | 42-50 | 57-67 |
| Flywheel Housing to Engine | 40-50 | 55-67 |
| Back-Up Lamp Switch | 8-12 | 11-16 |
| Gear Shift to Cam & Shaft Assembly Lock Nuts | 18-23 | 25-31 |
| U-Joint Flange to Output Shaft | 60-80 | 82-108 |
| Filler Plug | 10-20 | 14-27 |
| Shifter Fork Set Screw | 10-18 | 14-24 |
| Rear Support to Frame | 48-65 | 65-88 |

Powertrain — Manual Transmission

TORQUE SPECIFICATIONS — CONT'D

Ranger — Gasoline Engine

Five Speed Transmission

| Description | N·m | ft-lb |
|--|---------|---------|
| Bearing Cover Attaching Bolts | 56-79 | 41-59 |
| Mainshaft Locknut | 156-233 | 115-172 |
| Blind Covers Attaching Bolts | 32-45 | 23-34 |
| Idle Shaft Capscrew | 56-79 | 41-59 |
| Extension Housing Attaching Bolts and Nuts | 82-108 | 60-80 |
| Transmission Case Cover | 32-45 | 23-34 |
| Filler Plugs | 25-39 | 18-29 |

Powertrain — Manual Transmission

TORQUE SPECIFICATIONS — CONT'D

Warner T18 — Transmission

| Description | Size | Torque Limits | |
|---|---------|---------------|---------|
| | | ft-lb | N·m |
| Back Up Light Switch | 9/16- | 15-25 | 20-47 |
| Clutch Housing to Transmission Mounting Bolts | 7/16-14 | 35-50 | 47-67 |
| Case Cover | 3/8-16 | 25-35 | 34-47 |
| Countershaft Rear Retainer | 3/8-16 | 25-35 | 34-47 |
| Drain Plug | 3/4-14 | 25-40 | 34-54 |
| Filler Plug | 3/4-14 | 25-40 | 34-54 |
| Output Shaft Flange Nut | 3/4-20 | 75-110 | 102-149 |
| Mainshaft Rear Retainer | 3/8-16 | 25-35 | 34-47 |
| | 1/2-13 | 40-50 | 54-67 |
| P.T.O. Cover Bolt | 3/8-16 | 25-35 | 34-47 |
| Reverse Idler Shaft/Countershaft Locking Bolt | 3/8-16 | 25-35 | 34-47 |
| Front Bearing Retainer to Case | 5/16-18 | 10-15 | 14-20 |
| Clutch Housing to Engine Block | 7/16-14 | 40-50 | 54-67 |

Warner T19B Transmission

| Transmission | N·m | ft-lb |
|---|---------|--------|
| Transmission to Flywheel Housing | 51-56 | 37-42 |
| Gear Shift Housing to Case | 34-47 | 25-35 |
| Speedometer Cable Retainer to Output Shaft Bearing Retainer | 4.5-6 | 3-4.5 |
| Output Shaft Bearing Retainer to Case | 48-61 | 34-45 |
| Flywheel Housing to Engine | 55-67 | 40-50 |
| Filler Plug | 34-54 | 25-40 |
| Drain Plug | 34-54 | 25-40 |
| Output Shaft Flange Nut | 102-149 | 75-115 |
| Countershaft and Reverse Idler Shaft Retainer Bolt | 34-47 | 25-35 |
| Power Take Off Cover | 34-47 | 25-35 |
| Input Shaft Bearing Retainer | 21-33 | 15-25 |

Powertrain — Manual Transmission

TORQUE SPECIFICATIONS — CONT'D

New Process 435 Four Speed Transmission

| Description | Size | Torque Limits | |
|----------------------------------|---------|---------------|---------|
| | | ft-lb | N·m |
| Back-Up Lamp Switch | 9/16-18 | 20-30 | 28-54 |
| Bell Housing Mounting Bolts | 9/16-12 | 70-110 | 95-149 |
| Case Cover | 3/8-16 | 20-40 | 28-54 |
| Countershaft Rear Retainer | 3/8-16 | 20-40 | 28-54 |
| Drain Plug | 3/4-14 | 25-35 | 34-47 |
| Filler Plug | 3/4-14 | 25-35 | 34-47 |
| Flange Nut | 3/4-20 | 75-110 | 102-149 |
| Mainshaft Rear Retainer | 3/8-16 | 35-45 | 48-61 |
| P.T.O. Cover Bolt | 3/8-16 | 12-18 | 17-24 |
| Reverse Idler Shaft Locking Bolt | 3/8-16 | 20-40 | 28-54 |
| Input Shaft Retainer to Case | 5/16-18 | 25-35 | 34-47 |

Powertrain — Manual Transmission

TORQUE SPECIFICATIONS — CONT'D

Single Rail Overdrive Four Speed Overdrive Transmission

| Application | Bolt | Nut | Tightening Torque Ft-Lb (N·m) | Application | Bolt | Nut | Tightening Torque Ft-Lb (N·m) |
|------------------------------|-------------------------|--------------------|-------------------------------|-------------------------------|---------------------|-----------|-------------------------------|
| Input Shaft Bearing Retainer | 5/16 | Case | 19-25 (26-33) | Pin — Reverse Gear Fork Pivot | M16-1.5 | Case | 15-25 (21-33) |
| Extension Assembly | 7/16-14 | Case | 42-50 (56-67) | Turret Assembly | M8-1.25 | Extension | 8-12 (11-16) |
| Case Access Cover | 5/16-18 | Case | 20-25 (28-33) | Service I.D. | #6-32 | Case | Seat Firmly |
| Filler Plug | 1/2-14 U.S. Pipe Thread | Case | 10-20 (14-27) | Tag Screw Detent Bolt | Self-Tapping 3/8-16 | Case | 10-15 (14-20) |
| Back Up Lamp Switch | 9/16-18 | Turret Cover Assy. | 8-12 (11-16) | | | | |

Four Speed Overdrive Transmission

Transmission

| Application | Torque — 4-Speed | |
|--|------------------|-------|
| | (ft-lb) | N·m |
| Input Shaft Bearing Retainer to Case Bolt | 19-25 | 26-33 |
| Extension Housing to Case Bolt | 42-50 | 57-67 |
| Access Cover to Case Screw | 20-25 | 28-33 |
| Outer Gear Shift Levers to Cam and Shaft Nut | 18-23 | 25-31 |
| Filler Plug to Case | 10-20 | 14-27 |
| Detent Bolt to Case | 10-15 | 14-20 |

Shifter

| Description | Size | Torque | |
|---|---------------------------------|---------|-------|
| | | (ft-lb) | N·m |
| Shift control upper mounting bolt | 7/16-14 x 3 hex head | 20-30 | 28-40 |
| Shift control lever mounting bolt | 3/8-16 x 2.75 UBS hex head | 20-30 | 28-40 |
| Transmission shift control rod to shift | 5/16-18 nut and washer assembly | 10-20 | 14-27 |
| Control lever attaching nuts | | 10-20 | 14-27 |

Powertrain — 4x4 Transfer Case

TORQUE SPECIFICATIONS — CONT'D

Borg-Warner 13-50 Transfer Case — Ranger (4x4)

| Description | Torque | |
|---|---------|---------|
| | N·m | ft-lb |
| Breather Vent | 8-19 | 6-14 |
| Case to Cover Bolts | 31-41 | 23-30 |
| Drain and Fill Plug | 19-30 | 14-22 |
| Four-Wheel Drive Indicator Switch | 34-47 | 25-35 |
| Front and Rear Driveshaft Bolts | 16-20 | 12-15 |
| Shift Control Bolts — Large | 95-122 | 70-90 |
| Shift Control Bolts — Small | 42-57 | 31-42 |
| Shift Shaft and Shift Cam Set Screw | 6.8-9.5 | 5-7 |
| Skid Plate to Frame Bolt | 30-41 | 22-30 |
| Transfer Case to Transmission Adapter | 34-47 | 25-35 |
| Upper Shift Control Lever and Heat Shield Bolts | 37-50 | 27-37 |
| Yoke Nut | 163-203 | 120-150 |
| | N·m | in-lb |
| Oil Pump Bolts | 4.0-4.5 | 36-40 |
| Speedometer Screw | 2.3-2.8 | 20-25 |

NPG 208 Transfer Case — F-150-250 (4x4) Bronco

| Description | Torque Limits | |
|-----------------------------------|---------------|---------|
| | N·m | ft-lb |
| Lock Plate Bolts | 27-41 | 20-30 |
| Case Attaching Bolts | 28-33 | 20-25 |
| Rear Retainer Bolts | 28-33 | 20-25 |
| Four-Wheel Drive Indicator Switch | 20-33 | 15-25 |
| Poppet Ball Screw | 20-33 | 15-25 |
| Drain and Filler Plugs | 41-54 | 30-40 |
| Shifter Shaft Nut | 28-33 | 20-25 |
| Yoke Nut | 177-271 | 130-200 |

Powertrain — 4x4 Transfer Case

TORQUE SPECIFICATIONS — CONT'D

Borg-Warner 1345 Transfer Case — F-250-350 (4x4)

| Description | Torque Limits | |
|--|---------------|---------|
| | N·m | ft-lb |
| Case Half Attaching Bolts | 48-54 | 35-40 |
| Four-Wheel Drive Indicator Switch | 11-16 | 8-12 |
| Front and Rear Output Yokes to Transfer Case | 163-203 | 120-150 |
| Drain Plug | 13-24 | 14-22 |
| Fill Plug | 21-33 | 15-25 |
| Transfer Case to Transmission Adapter | 34-58 | 25-43 |
| Heat Shield to Transfer Case Upper Bolt | 55-61 | 40-45 |
| Skid Plate to Frame | 20-27 | 15-20 |
| Front Driveshaft to Front Output Yoke | 163-203 | 120-150 |
| Rear Driveshaft to Rear Output Yoke | 163-203 | 120-150 |

Powertrain — Automatic Transmission

Identification

Safety Compliance Certification Label

MFD. BY FORD MOTOR CO. IN U.S.A.

DATE:

FRONT GAWR:

GVWR:

REAR GAWR:

WITH

TIRES

RIMS

WITH

TIRES

RIMS

AT PSI COLD

AT PSI COLD

THIS VEHICLE CONFORMS TO ALL APPLICABLE FEDERAL MOTOR VEHICLE SAFETY STANDARDS IN EFFECT ON THE DATE OF MANUFACTURE SHOWN ABOVE

Vehicle Identification No.

Type

EXTERIOR PAINT COLORS

DSO

WB

Type GVW

Body

Trans

Axle

K

TRANSMISSION CODE

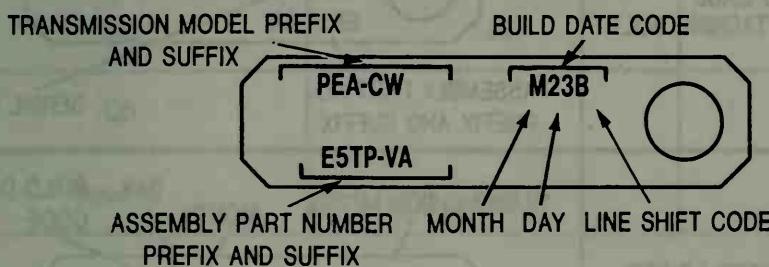
Transmission Codes

| Code | Description |
|------|------------------------------|
| V | Auto A4LD |
| W | Automatic C5 (Ranger, F-150) |
| K | Automatic C6 (F-150/350) |
| K | Automatic C6 (Bronco) |
| G | Automatic C6 (Econoline) |
| T | Automatic Overdrive (AOD) |

Powertrain — Automatic Transmission

Transmission Identification Tag

The identification tag is located under the lower front intermediate servo cover bolt. The tag shows the model prefix and suffix, assembly part numbers, and the built date code. The first line on the tag shows the transmission model prefix and suffix. A number appearing after the suffix indicates that internal parts have been changed after initial production start up. For example, a PEA-CP model transmission that has been changed internally would read PEA-CP1. Both transmissions are basically the same, but some service parts in the PEA-CP1 transmission are slightly different than the PEA-CP transmission. Therefore, it is important that the codes on the transmission identification tag be checked when ordering parts or making inquiries about the transmission.



TAG LOCATED UNDER LOWER FRONT INTERMEDIATE SERVO COVER BOLT

AUTOMATIC TRANSMISSION MODEL IDENTIFICATION

Models Are Identified by a Service Identification Tag Affixed to the Assembly. Tags Are Located and Contain Information as Follows:

| BASIC MODEL | TAG LOCATION | INFORMATION (TYPICAL) |
|-------------|---|--|
| C5 | UNDER LOWER INTERMEDIATE SERVO COVER BOLT. | <p>The diagram shows a hexagonal tag for the C5 model. The 'TRANSMISSION MODEL' is 'PEP-Z'. The 'ASSEMBLY PART NO. PREFIX AND SUFFIX' is 'E4DP-DA'. The 'BUILD DAY CODE' is 'M23B'. The 'MONTH' and 'DAY' fields are empty circles. The 'LINE SHIFT CODE' is also an empty circle.</p> |
| A4LD | ATTACHED TO LOWER LEFT HAND EXTENSION ATTACHING BOLT. | <p>The diagram shows a hexagonal tag for the A4LD model. The 'TRANSMISSION MODEL' is '82DP-AAA'. The 'BUILD DATE CODE' is '7G'. The 'YEAR' is '17'. The 'LINE SHIFT CODE' is 'T'. The 'MONTH' and 'DAY' fields are empty circles.</p> |

Powertrain — Automatic Transmission

AUTOMATIC TRANSMISSION MODEL IDENTIFICATION — CONT'D

Models Are Identified by a Service Identification Tag Affixed to the Assembly.
Tags Are Located and Contain Information as Follows:

| <u>BASIC MODEL</u> | <u>TAG LOCATION</u> | <u>INFORMATION (TYPICAL)</u> |
|--------------------|--|---|
| AOD | UPPER RIGHT HAND EXTENSION TO CASE ATTACHING BOLT. | <p>TRANSMISSION MODEL PKA-BV7 10001 E5LP-AA</p> <p>ASSEMBLY PART NO. PREFIX AND SUFFIX</p> <p>SERIAL NO.</p> <p>MONTH M21</p> <p>BUILD DATE DAY</p> |
| C6 | UNDER LOWER FRONT INTER- MEDIATE SERVO COVER BOLT. | <p>TRANSMISSION MODEL PGD-AW27 E5TP-AA</p> <p>ASSEMBLY PART NO. PREFIX AND SUFFIX</p> <p>DAY A3</p> <p>MONTH</p> <p>BUILD DAY CODE</p> |
| A4LD | ATTACHED TO LOWER LEFT HAND EXTENSION ATTACHING BOLT. | <p>TRANSMISSION MODEL 85DT-AAA</p> <p>LINE SHIFT CODE 7G</p> <p>BUILD DATE CODE</p> <p>MONTH</p> <p>YEAR 11</p> <p>DAY</p> |

Transmission Tag — Transmission Identification

PTC-5-009-A



Powertrain — Automatic Transmission

GEAR RATIOS — ALL VEHICLES

| Gear | C-5, C-6, Ranger, F-Series, Bronco, Econoline | AOD F-Series |
|---------|--|-----------------|
| 1st | 2.46 | 2.40 |
| 2nd | 1.46 | 1.46 |
| 3rd | 1.00 | 1.00 |
| OD | — | .66 |
| Reverse | 2.18 | 2.00 |

Powertrain — Automatic Transmission

SHIFT SPEEDS — ACTUAL M.P.H.

A4LD Transmission

2.8L-2V 3.45, 3.73, 4.10 A/R

Ranger/Aerostar 4x2

50S/Can./Alt.

85GT-AEA, ALA, AMA, BCA

| Throttle | Range | Shift | OPS — R.P.M. | COLUMN NUMBER | | | | |
|--|--------|-------|--------------|---------------|-------|-------|-------|-------|
| | | | | 1 | 2 | 3 | 4 | 5 |
| Closed Throttle 10-15in. hg. Vacuum | (D), D | 1-2 | 458-712 | 9-15 | 10-16 | 8-14 | 9-14 | 8-13 |
| | (D), D | 2-3 | 814-1221 | 16-26 | 17-27 | 15-24 | 16-25 | 15-23 |
| | (D) | 3-4 | 1781-2290 | 37-48 | 38-50 | 34-44 | 36-46 | 33-43 |
| | (D), D | CL | 1578-1985 | 32-41 | 34-43 | 30-38 | 31-40 | 29-37 |
| | (D), D | CU | See Note 1 | | | | | |
| | (D) | 4-3 | 865-1170 | 18-24 | 18-26 | 16-23 | 17-24 | 16-22 |
| | (D), D | 3-2 | 458-763 | 9-16 | 10-17 | 8-15 | 9-15 | 8-14 |
| | (D), D | 2-1 | 356-560 | 7-12 | 7-12 | 6-11 | 7-11 | 6-11 |
| To Detent 2.0in. hg. Vacuum | (D), D | 1 | 1527-1832 | 31-38 | 33-40 | 29-35 | 30-37 | 28-34 |
| | (D), D | 1-2 | 1476-1871 | 30-37 | 32-39 | 28-34 | 30-36 | 27-33 |
| | (D), D | 2-3 | 2087-2392 | 43-50 | 45-52 | 40-46 | 42-48 | 38-44 |
| | (D) | 3-4* | 2372-2677 | 49-56 | 51-58 | 46-51 | 48-54 | 44-50 |
| | (D), D | CL* | 1990-2296 | 41-48 | 43-50 | 38-44 | 40-47 | 36-43 |
| | (D), D | CU | See Note 1 | | | | | |
| | (D) | 4-3 | 2698-3003 | 56-63 | 59-66 | 51-58 | 54-60 | 50-56 |
| | (D), D | 3-2 | 1680-1985 | 34-41 | 36-43 | 32-38 | 34-40 | 31-37 |
| Through Detent WOT 2.0in. hg. Vacuum | (D), D | 1-2 | 1781-2087 | 37-44 | 38-46 | 34-40 | 36-42 | 33-39 |
| | (D), D | 2-3 | 3003-3308 | 62-69 | 65-73 | 57-64 | 61-67 | 56-61 |
| | (D), D | CL | See Note 1 | | | | | |
| | (D), D | CU | See Note 1 | | | | | |
| | (D), D | 3-2 | 2850-3156 | 59-66 | 62-69 | 54-61 | 58-64 | 53-59 |
| | (D), D | 3-1 | 1578-1883 | 32-39 | 34-41 | 30-36 | 32-38 | 29-35 |

• Check 3-4 upshift and converter clutch lock up at 7.0 in hg vacuum.

CL — Converter Clutch Lock Up

CU — Converter Clutch Unlock

NOTE:

1 The converter clutch upshift/downshift is scheduled hydraulically but can be overridden electronically. The converter clutch is prevented from engaging or is disengaged during the following driving modes:

- engine coolant below 128°F or above 240°F
- application of brakes
- closed throttle
- heavy or W.O.T. throttle accelerations
- quick tip-ins
- quick tip-outs

- when the actual engine speed is below a certain value at lower vacuums (this ensures all 4-3 torque demands will be made on an unlocked converter).

| Axle Ratio | TIRE SIZE | USE COLUMN NUMBER | | |
|------------|--------------|-------------------|------|------|
| | | 3.45 | 3.73 | 4.10 |
| | P185/75R14SL | 1 | 3 | |
| | P205/75R14SL | 2 | 4 | 5 |
| | P195/75R14SL | 2 | 4 | |
| | P215/75R14SL | 2 | 4 | 5 |

Powertrain — Automatic Transmission

SHIFT SPEEDS — ACTUAL M.P.H.

A4LD Transmission

2.3L (EFI) 3.73 and 4.10 A/R

Ranger/Aerostar

85GT-ABA, ACA

| Throttle | Range | Shift | OPS — R.P.M. | 1 | 2 | 3 | 4 | 5 |
|--|-------|-------|--------------|-------|-------|-------|-------|---|
| Closed Throttle 10-15in. hg. Vacuum | (D, D | 1-2 | 509-764 | 9-15 | 10-16 | 8-14 | 9-14 | |
| | (D, D | 2-3 | 713-1069 | 13-21 | 14-22 | 12-19 | 13-20 | |
| | (D | 3-4 | 1832-2240 | 35-43 | 37-45 | 32-39 | 33-41 | |
| | (D, D | CL | 2036-2494 | 39-48 | 41-50 | 35-44 | 37-46 | |
| | (D, D | CU | See Note 1 | | | | | |
| | (D | 4-3 | 814-1120 | 15-22 | 16-23 | 14-20 | 15-21 | |
| | (D, D | 3-2 | 509-814 | 9-16 | 10-16 | 8-14 | 9-15 | |
| | (D, D | 2-1 | 356-560 | 6-11 | 7-11 | 6-10 | 6-11 | |
| | 1 | 2-1 | 1476-1781 | 28-34 | 29-36 | 25-31 | 27-33 | |
| To Detent 1.5in. hg. Vacuum | (D, D | 1-2 | 1425-1731 | 27-33 | 28-35 | 25-30 | 26-32 | |
| | (D, D | 2-3 | 2036-2341 | 39-45 | 41-47 | 35-41 | 37-43 | |
| | (D | 3-4* | 2499-2804 | 48-54 | 50-56 | 43-49 | 45-52 | |
| | (D, D | CL* | 2433-2738 | 46-53 | 49-55 | 42-48 | 44-50 | |
| | (D, D | CU | See Note 1 | | | | | |
| | (D | 4-3 | 2647-2952 | 50-57 | 53-60 | 46-52 | 48-54 | |
| | (D, D | 3-2 | 1629-1934 | 31-37 | 32-39 | 28-34 | 29-36 | |
| Through Detent WOT 1.0in. hg. Vacuum | (D, D | 1-2 | 1832-2138 | 35-41 | 37-43 | 32-38 | 33-39 | |
| | (D, D | 2-3 | 3156-3461 | 60-67 | 63-70 | 55-61 | 58-64 | |
| | (D, D | CL | See Note 1 | | | | | |
| | (D, D | CU | See Note 1 | | | | | |
| | (D, D | 3-2 | 2952-3258 | 56-63 | 59-66 | 51-57 | 54-60 | |
| | (D, D | 3-1 | 1527-1832 | 29-35 | 30-37 | 26-32 | 28-34 | |

- Check 3-4 upshift and converter clutch lock up at 7.0 in hg vacuum.

CL — Converter Clutch Lock Up

CU — Converter Clutch Unlock

NOTE:

1 The converter clutch upshift/downshift is scheduled hydraulically but can be overridden electronically. The converter clutch is prevented from engaging or is disengaged during the following driving modes:

- engine coolant below 128°F or above 240°F
- application of brakes
- closed throttle
- heavy or W.O.T. throttle accelerations
- quick tip-ins
- quick tip-outs

| COLUMN NUMBER | | | | | | | | |
|---------------|--------------|---|---|------|------|--|--|--|
| | 1 | 2 | 3 | 4 | 5 | | | |
| Axle Ratio | | | | 3.73 | 4.10 | | | |
| | P185/75R14SL | 1 | 3 | | | | | |
| | P195/75R14SL | 2 | 4 | | | | | |
| | P205/75R14SL | 2 | 4 | | | | | |
| | P215/75R14SL | 2 | 4 | | | | | |

- when the actual engine speed is below a certain value at lower vacuums (this ensures all 4-3 torque demands will be made on an unlocked converter).

| | TIRE SIZE | USE COLUMN NUMBER | |
|------------|--------------|-------------------|------|
| Axle Ratio | | 3.73 | 4.10 |
| | P185/75R14SL | 1 | 3 |
| | P195/75R14SL | 2 | 4 |
| | P205/75R14SL | 2 | 4 |
| | P215/75R14SL | 2 | 4 |

Powertrain — Automatic Transmission

SHIFT SPEEDS — ACTUAL M.P.H.

A4LD Transmission

Ranger 4x4/Bronco II

50S/Can/Alt

85GT-AGA, BAA

| Throttle | Range | Shift | OPS — R.P.M. | 1 | 2 | 3 | 4 | 5 |
|--|--------|-------|--------------|-------|-------|-------|---|---|
| Closed Throttle 10-15in. hg. Vacuum | (D), D | 1-2 | 458-712 | 8-14 | 9-14 | 8-13 | | |
| | (D), D | 2-3 | 814-1221 | 15-24 | 16-25 | 15-23 | | |
| | (D) | 3-4 | 1781-2290 | 34-44 | 36-46 | 33-43 | | |
| | (D), D | CL | 1578-1985 | 30-38 | 31-40 | 29-37 | | |
| | (D), D | CU | See Note 1 | | | | | |
| | (D) | 4-3 | 865-1170 | 16-23 | 17-24 | 16-22 | | |
| | (D), D | 3-2 | 458-763 | 8-15 | 9-15 | 8-14 | | |
| | (D), D | 2-1 | 356-560 | 6-11 | 7-11 | 6-11 | | |
| To Detent 2.0in. hg. Vacuum | 1 | 2-1 | 1527-1832 | 29-35 | 30-37 | 28-34 | | |
| | (D), D | 1-2 | 1476-1781 | 28-34 | 30-36 | 27-33 | | |
| | (D), D | 2-3 | 2087-2392 | 40-46 | 42-48 | 38-44 | | |
| | (D) | 3-4* | 2372-2677 | 46-51 | 48-54 | 44-50 | | |
| | (D), D | CL* | 1990-2296 | 38-44 | 40-47 | 36-43 | | |
| | (D), D | CU | See Note 1 | | | | | |
| | (D) | 4-3 | 2698-3003 | 51-58 | 54-60 | 50-56 | | |
| Through Detent WOT 2.0in. hg. Vacuum | (D), D | 3-2 | 1680-1985 | 32-38 | 34-40 | 31-37 | | |
| | (D), D | 1-2 | 1781-2087 | 34-40 | 36-42 | 33-39 | | |
| | (D), D | 2-3 | 3003-3308 | 57-64 | 61-67 | 56-61 | | |
| | (D), D | CL | See Note 1 | | | | | |
| | (D), D | CU | See Note 1 | | | | | |
| | (D), D | 3-2 | 2850-3156 | 54-61 | 58-64 | 53-59 | | |
| | (D), D | 3-1 | 1578-1883 | 30-36 | 32-38 | 29-35 | | |

* Check 3-4 upshift and converter clutch lock up at 7.0 in hg vacuum.

CL — Converter Clutch Lock Up

CU — Converter Clutch Unlock

NOTE:

1 The converter clutch upshift/downshift is scheduled hydraulically but can be overridden electronically. The converter clutch is prevented from engaging or is disengaged during the following driving modes:

- engine coolant below 128°F or above 240°F
- application of brakes
- closed throttle
- heavy or W.O.T. throttle accelerations
- quick tip-ins
- quick tip-outs

- when the actual engine speed is below a certain value at lower vacuums (this ensures all 4-3 torque demands will be made on an unlocked converter).

| Axle Ratio | TIRE SIZE | USE COLUMN NUMBER | |
|------------|--------------|-------------------|------|
| | | 3.73 | 4.10 |
| | P185/75R14SL | 1 | |
| | P195/75R14SL | 2 | |
| | P205/75R14SL | 2 | 3 |
| | P215/75R14SL | 2 | 3 |

Powertrain — Automatic Transmission

SHIFT SPEEDS — ACTUAL M.P.H.

C5 Automatic Transmission

4.9L 3.08 A/R

F150 50S

PEA-CU

| Throttle | Range | Shift | OPS — R.P.M. | COLUMN NUMBER | | | |
|------------------------------------|-------|----------|--------------|---------------|-------|-------|---|
| | | | | 1 | 2 | 3 | 4 |
| Closed (Above 17" Vacuum) | D | 1-2 | 405-449 | 10-11 | 10-12 | 10-12 | |
| | D | 2-3 | 574-776 | 14-19 | 15-21 | 14-20 | |
| | D | 3-1, 2-1 | 331-366 | 8-9 | 8-9 | 8-10 | |
| | 1 | 2-1 | 1004-1192 | 25-30 | 27-32 | 25-31 | |
| To Detent (Torque Demand) | D | 1-2 | 724-995 | 18-25 | 19-27 | 18-26 | |
| | D | 2-3 | 1341-1536 | 36-38 | 36-41 | 34-40 | |
| | D | 3-2 | 1070-1259 | 26-31 | 29-34 | 27-33 | |
| Through Detent (W.O.T.) | D | 1-2 | 1373-1598 | 34-40 | 37-43 | 35-41 | |
| | D | 2-3 | 2413-2681 | 60-67 | 65-73 | 62-69 | |
| | D | 3-2 | 2170-2324 | 54-58 | 58-63 | 56-60 | |
| | D | 3-1, 2-1 | 998-1218 | 24-30 | 27-33 | 25-32 | |

| Axle Ratio | TIRE SIZE | USE COLUMN NUMBER | | |
|------------|--------------|-------------------|--|--|
| | | 3.08 | | |
| | P195/75R15SL | 1 | | |
| | P215/75R15SL | 2 | | |
| | P235/75R15SL | 3 | | |

Powertrain — Automatic Transmission

SHIFT SPEEDS — ACTUAL M.P.H.

C5 Automatic Transmission

5.0L — 3.08, A/R, F-150, 49S, PEA-CW

| Throttle | Range | Shift | OPS-R.P.M. | COLUMN NUMBER | | | |
|---------------------------------|-------|----------|------------|---------------|-------|-------|---|
| | | | | 1 | 2 | 3 | 4 |
| Closed (Above 17" Vacuum) | D | 1-2 | 413-456 | 10-11 | 11-12 | 10-12 | |
| | D | 2-3 | 580-761 | 14-19 | 15-21 | 14-20 | |
| | D | 3-1, 2-1 | 331-366 | 8-9 | 8-10 | 8-9 | |
| | 1 | 2-1 | 1122-1320 | 28-33 | 30-36 | 28-34 | |
| To Detent (Torque Demand) | D | 1-2 | 964-1240 | 24-31 | 26-34 | 24-32 | |
| | D | 2-3 | 1600-1852 | 40-42 | 43-50 | 41-18 | |
| | D | 3-2 | 1459-1614 | 36-40 | 39-43 | 37-42 | |
| Through Detent (W.O.T.) | D | 1-2 | 1516-1755 | 37-44 | 41-48 | 39-45 | |
| | D | 2-3 | 2621-2901 | 65-72 | 71-79 | 67-75 | |
| | D | 3-2 | 2359-2516 | 58-63 | 63-68 | 60-65 | |
| | D | 3-1, 2-1 | 1110-1341 | 27-33 | 30-36 | 28-35 | |

| Aisle Ratio | TIRE SIZE | USE COLUMN NUMBER | | | |
|-------------|---------------|-------------------|--|--|--|
| | | 3.08 | | | |
| | P195/75R 15SL | 1 | | | |
| | P215/75R 15SL | 2 | | | |
| | P235/75R 15XL | 3 | | | |

Powertrain — Automatic Transmission

SHIFT SPEEDS — ACTUAL M.P.H.

C6 Automatic Transmission

Trans. Models: PGD-AW-EG-EK A18CS

| Throttle | Range | Shift | OPS-R.P.M. | COLUMN NUMBER | | | |
|---------------------------------|-------|---------|------------|---------------|-------|-------|-------|
| | | | | 1 | 2 | 3 | 4 |
| Closed (Above 17" Vacuum) | D | 1-2 | 270-560 | 7-15 | 7-14 | 6-13 | 6-12 |
| | D | 2-3 | 375-870 | 10-24 | 9-22 | 9-20 | 8-18 |
| | D | 3-1 | 270-330 | 7-9 | 7-8 | 6-8 | 6-8 |
| | 1 | 2-1 | 890-1260 | 24-34 | 22-32 | 20-29 | 19-26 |
| To Detent (Torque Demand) | D | 1-2 | 710-1310 | 19-35 | 18-33 | 16-30 | 15-27 |
| | D | 2-3 | 1260-1940 | 34-52 | 32-49 | 29-44 | 26-40 |
| | D | 3-2 | 600-1510 | 16-41 | 15-38 | 14-34 | 13-31 |
| Through Detent (W.O.T.) | D | 1-2 | 1250-1590 | 34-43 | 31-40 | 28-36 | 26-33 |
| | D | 2-3 | 2190-2570 | 59-69 | 55-64 | 50-58 | 46-54 |
| | D | 3-2 | 1990-2340 | 54-63 | 50-59 | 45-53 | 41-49 |
| | D | 3-1 2-1 | 840-1200 | 23-32 | 21-30 | 19-27 | 18-25 |

| Axe Ratio | TIRE SIZE | USE COLUMN NUMBER | | | | |
|-----------|---------------|-------------------|------|------|------|------|
| | | 3.50 | 3.54 | 3.55 | 3.73 | 4.10 |
| | P195/75R 15SL | | | 3 | | |
| | P205/75R 15SL | 3 | | | | |
| | P215/75R 15SL | | | 3 | | |
| | P225/75R 15SL | 3 | | | | |
| | P235/75R 15XL | 2 | | 2 | 2 | 4 |
| | LT215/85R 16C | | 2 | 2 | 2 | 4 |
| | LT215/85R 16D | | 2 | 2 | 2 | 3 |
| | LT235/85R 16D | | | 2 | 2 | 3 |
| | LT235/85R 16E | | 1 | 2 | | |
| | 7.50D x 16D | | 2 | | | 3 |
| | 7.50R x 16D | | | 2 | 2 | 3 |
| | 8.00 x 16.5D | | 3 | 3 | 3 | 4 |
| | 8.75 x 16.5D | | 2 | 2 | 3 | 4 |
| | 8.75 x 16.5E | | 2 | 2 | 3 | 4 |
| | 8.75R x 16.5E | | 2 | 2 | 3 | 4 |
| | 9.50 x 16.5E | | 2 | | 2 | 3 |
| | 9.50R x 16.5E | | 2 | | 2 | 4 |

Powertrain — Automatic Transmission

SHIFT SPEEDS — ACTUAL M.P.H.

RPM AUTOM — 20500 RPM

C6 Automatic Transmission

Trans. Models: PGD-AW-EG

(Altitude) A18CB

Model 100

Model 200

| Throttle | Range | Shift | OPS-R.P.M. | COLUMN NUMBER | | | |
|---------------------------------|-------|---------|------------|---------------|-------|-------|-------|
| | | | | 1 | 2 | 3 | 4 |
| Closed (Above 17" Vacuum) | D | 1-2 | 270-640 | 7-17 | 7-16 | 6-15 | 6-14 |
| | D | 2-3 | 375-930 | 10-25 | 9-3 | 9-21 | 8-19 |
| | D | 3-1 | 270-330 | 7-9 | 7-8 | 6-8 | 6-8 |
| | 1 | 2-1 | 890-1260 | 24-34 | 22-32 | 20-29 | 19-26 |
| To Detent (Torque Demand) | D | 1-2 | 770-1520 | 22-40 | 21-37 | 19-35 | 18-32 |
| | D | 2-3 | 1330-2330 | 35-63 | 33-59 | 30-53 | 27-50 |
| | D | 3-2 | 730-1640 | 21-45 | 20-42 | 18-38 | 18-35 |
| Through Detent (W.O.T.) | D | 1-2 | 1250-1630 | 34-45 | 31-42 | 28-38 | 26-35 |
| | D | 2-3 | 2200-2630 | 59-70 | 55-65 | 50-59 | 46-55 |
| | D | 3-2 | 1980-2380 | 54-64 | 50-60 | 45-54 | 41-50 |
| | D | 3-1 2-1 | 830-1230 | 23-32 | 21-30 | 19-27 | 18-25 |

| Aisle Ratio | TIRE SIZE | USE COLUMN NUMBER | | | | |
|-------------|---------------|-------------------|------|------|------|------|
| | | 3.50 | 3.54 | 3.55 | 3.73 | 4.10 |
| | P195/75R 15SL | | | 3 | | |
| | P205/75R 15SL | 3 | | | | |
| | P215/75R 15SL | | | 3 | | |
| | P225/75R 15SL | 3 | | | | |
| | P235/75R 15XL | 2 | | 2 | 2 | 4 |
| | LT215/85R 16C | | 2 | 2 | 2 | 4 |
| | LT215/85R 16D | | 2 | 2 | 2 | 3 |
| | LT235/85R 16D | | | 2 | 2 | 3 |
| | LT235/85R 16E | | 1 | 2 | | |
| | 7.50D x 16D | | 2 | | | 3 |
| | 7.50R x 16D | | | 2 | 2 | 3 |
| | 8.00 x 16.5D | | 3 | 3 | 3 | 4 |
| | 8.75 x 16.5D | | 2 | 2 | 3 | 4 |
| | 8.75 x 16.5E | | 2 | 2 | 3 | 4 |
| | 8.75 x 16.5E | | 2 | 2 | 3 | 4 |
| | 9.50 x 16.5E | | 2 | | 2 | 3 |
| | 9.50 x 16.5E | | 2 | | 2 | 4 |

Powertrain — Automatic Transmission

SHIFT SPEEDS — ACTUAL M.P.H.

C6 Automatic Transmission

Trans. Models: PGD-EV-EY

A36CW

| Throttle | Range | Shift | OPS-R.P.M. | COLUMN NUMBER | | | |
|---------------------------------|-------|---------|------------|---------------|-------|-------|-------|
| | | | | 1 | 2 | 3 | 4 |
| Closed (Above 17" Vacuum) | D | 1-2 | 270-620 | 7-16 | 6-15 | 6-13 | 6-13 |
| | D | 2-3 | 400-990 | 11-26 | 10-24 | 9-21 | 8-21 |
| | D | 3-1 | 270-330 | 7-9 | 6-8 | 6-7 | 6-7 |
| | 1 | 2-1 | 990-1380 | 26-36 | 24-33 | 21-30 | 21-29 |
| To Detent (Torque Demand) | D | 1-2 | 1130-1790 | 30-47 | 27-43 | 25-39 | 24-37 |
| | D | 2-3 | 1920-2820 | 51-74 | 46-67 | 42-63 | 40-59 |
| | D | 3-2 | 1380-2390 | 36-63 | 33-57 | 30-52 | 29-50 |
| Through Detent (W.O.T.) | D | 1-2 | 1510-1860 | 40-49 | 36-44 | 33-40 | 31-39 |
| | D | 2-3 | 2600-3020 | 68-79 | 62-72 | 57-66 | 54-63 |
| | D | 3-2 | 2270-2660 | 60-70 | 54-63 | 49-58 | 47-55 |
| | D | 3-1 2-1 | 970-1340 | 26-35 | 23-32 | 21-29 | 20-28 |

| A axle Ratio | TIRE SIZE | USE COLUMN NUMBER | | | | |
|--------------|---------------|-------------------|------|------|------|------|
| | | 3.50 | 3.54 | 3.55 | 3.73 | 4.10 |
| | P195/75R 15SL | | | 3 | | |
| | P205/75R 15SL | 3 | | | | |
| | P215/75R 15SL | | | 3 | | |
| | P225/75R 15SL | 2 | | | | |
| | P235/75R 15XL | 2 | | 2 | | |
| | LT215/85R 16C | | 1 | 1 | 2 | 3 |
| | LT215/85R 16D | | 1 | 1 | 2 | 3 |
| | LT235/85R 16D | | | 1 | 1 | 3 |
| | LT235/85R 16E | | 1 | 1 | 1 | 3 |
| | 7.50D x 16D | | 1 | | | 3 |
| | 7.50R x 16D | | | 1 | 1 | 3 |
| | 8.00 x 16.5D | | 2 | 3 | 3 | 4 |
| | 8.75 x 16.5D | | 2 | 2 | 3 | 4 |
| | 8.75 x 16.5E | | 2 | 2 | 3 | 4 |
| | 8.75R x 16.5E | | 2 | 2 | 3 | 4 |
| | 9.50 x 16.5E | | 1 | | 2 | 3 |
| | 9.50R x 16.5E | | 1 | | 2 | 3 |

Powertrain — Automatic Transmission

SHIFT SPEEDS — ACTUAL M.P.H.

C6 Automatic Transmission

Trans. Models: PGD-EV-EY

(Altitude) A36CB

AMM JAU7DA — 202398-TINC
Performance Division Co
12-43-004 mscm 00011
W0054

| Throttle | Range | Shift | OPS-R.P.M. | COLUMN NUMBER | | | |
|---------------------------------|-------|---------|------------|---------------|-------|-------|-------|
| | | | | 1 | 2 | 3 | 4 |
| Closed (Above 17" Vacuum) | D | 1-2 | 270-610 | 7-16 | 6-15 | 6-13 | 6-13 |
| | D | 2-3 | 400-980 | 11-26 | 10-24 | 9-21 | 8-21 |
| | D | 3-1 | 270-330 | 7-9 | 6-8 | 6-7 | 6-7 |
| | 1 | 2-1 | 990-1380 | 26-36 | 24-33 | 21-30 | 21-29 |
| To Detent (Torque Demand) | D | 1-2 | 1040-1820 | 27-48 | 25-43 | 22-39 | 22-38 |
| | D | 2-3 | 1780-2870 | 47-76 | 42-68 | 38-62 | 37-60 |
| | D | 3-2 | 1200-2450 | 32-64 | 29-58 | 26-53 | 25-51 |
| Through Detent (W.O.T.) | D | 1-2 | 1480-1890 | 39-50 | 35-45 | 32-41 | 31-39 |
| | D | 2-3 | 2560-3060 | 67-81 | 61-73 | 56-67 | 53-63 |
| | D | 3-2 | 2240-2700 | 59-71 | 53-64 | 49-59 | 47-56 |
| | D | 3-1 2-1 | 940-1360 | 25-36 | 22-32 | 20-30 | 20-28 |

| Axe Ratio | TIRE SIZE | USE COLUMN NUMBER | | | | |
|-----------|---------------|-------------------|------|------|------|------|
| | | 3.50 | 3.54 | 3.55 | 3.73 | 4.10 |
| | P195/75R 15SL | | | 3 | | |
| | P205/75R 15SL | 3 | | | | |
| | P215/75R 15SL | | | 3 | | |
| | P225/75R 15SL | 2 | | | | |
| | P235/75R 15XL | 2 | | 2 | | |
| | LT215/85R 16C | | 1 | 1 | 2 | 3 |
| | LT215/85R 16D | | 1 | 1 | 2 | 3 |
| | LT235/85R 16D | | | 1 | 1 | 3 |
| | LT235/85R 16E | | 1 | 1 | 1 | 3 |
| | 7.50D x 16D | | 1 | | | 3 |
| | 7.50R x 16D | | | 1 | 1 | 3 |
| | 8.00 x 16.5D | | 2 | 3 | 3 | 4 |
| | 8.75 x 16.5D | | 2 | 2 | 3 | 4 |
| | 8.75 x 16.5E | | 2 | 2 | 3 | 4 |
| | 8.75R x 16.5E | | 2 | 2 | 3 | 4 |
| | 9.50 x 16.5E | | 1 | | 2 | 3 |
| | 9.50R x 16.5E | | | 1 | 2 | 3 |

Powertrain — Automatic Transmission

SHIFT SPEEDS — ACTUAL M.P.H.

C6 Automatic Transmission
Trans. Models: PGD-FB-FC
A29BS

| Throttle | Range | Shift | OPS-R.P.M. | COLUMN NUMBER | | | |
|---------------------------------|-------|---------|------------|---------------|-------|-------|-------|
| | | | | 1 | 2 | 3 | 4 |
| Closed (Above 17" Vacuum) | D | 1-2 | 270-420 | 7-11 | 7-11 | 6-9 | 6-10 |
| | D | 2-3 | 375-830 | 10-22 | 10-22 | 8-18 | 9-20 |
| | D | 3-1 | 270-330 | 7-9 | 7-9 | 6-7 | 6-8 |
| | 1 | 2-1 | 860-1200 | 22-31 | 23-33 | 19-27 | 21-29 |
| To Detent (Torque Demand) | D | 1-2 | 620-1310 | 16-34 | 17-36 | 14-29 | 15-31 |
| | D | 2-3 | 890-1780 | 23-46 | 24-48 | 20-40 | 21-42 |
| | D | 3-2 | 770-1380 | 20-36 | 21-37 | 17-31 | 18-33 |
| Through Detent (W.O.T.) | D | 1-2 | 1270-1590 | 33-41 | 34-43 | 28-35 | 30-38 |
| | D | 2-3 | 2190-2560 | 57-66 | 59-69 | 49-57 | 52-61 |
| | D | 3-2 | 2120-2470 | 55-64 | 57-67 | 47-55 | 51-59 |
| | D | 3-1 2-1 | 900-1220 | 23-31 | 24-33 | 20-27 | 21-29 |

| Axle Ratio | TIRE SIZE | USE COLUMN NUMBER | | | |
|------------|---------------|-------------------|------|--|--|
| | | 3.00 | 3.50 | | |
| | P205/75R 15SL | 1 | 3 | | |
| | P225/75R 15SL | 2 | 4 | | |
| | P235/75R 15XL | 2 | 4 | | |

Powertrain — Automatic Transmission

SHIFT SPEEDS — ACTUAL M.P.H.

C6 Automatic Transmission
Trans. Models: PJD-BA-BB-BC
10CZ

| Throttle | Range | Shift | OPS-R.P.M. | COLUMN NUMBER | | | | |
|---------------------------------|-------|---------|------------|---------------|-------|-------|-------|-------|
| | | | | 1 | 2 | 3 | 4 | 5 |
| Closed (Above 17" Vacuum) | D | 1-2 | 270-660 | 8-19 | 8-18 | 7-16 | 6-15 | 6-14 |
| | D | 2-3 | 375-880 | 11-26 | 10-25 | 10-23 | 9-20 | 8-18 |
| | D | 3-1 | 270-330 | 8-10 | 8-9 | 7-8 | 6-8 | 6-7 |
| | 1 | 2-1 | 880-1210 | 26-36 | 25-34 | 23-31 | 20-28 | 18-25 |
| To Detent (Torque Demand) | D | 1-2 | 1030-1550 | 31-46 | 29-43 | 26-40 | 23-35 | 21-32 |
| | D | 2-3 | 1700-2400 | 51-72 | 47-67 | 44-62 | 39-55 | 35-50 |
| | D | 3-2 | 960-1620 | 29-48 | 27-45 | 25-42 | 22-37 | 20-34 |
| Through Detent (W.O.T.) | D | 1-2 | 1320-1600 | 39-48 | 37-45 | 34-41 | 30-36 | 28-33 |
| | D | 2-3 | 2230-2560 | 65-76 | 61-71 | 56-66 | 50-58 | 46-53 |
| | D | 3-2 | 1940-2260 | 58-67 | 54-63 | 50-58 | 44-51 | 40-47 |
| | D | 3-1 2-1 | 870-1170 | 26-35 | 24-33 | 22-30 | 20-27 | 18-24 |

| Axle Ratio | TIRE SIZE | USE COLUMN NUMBER | | | |
|------------|---------------|-------------------|------|------|------|
| | | 3.07 | 3.54 | 3.73 | 4.10 |
| | LT215/85R 16C | | 3 | 4 | 5 |
| | LT215/85R 16D | | 3 | 4 | 5 |
| | LT235/85R 16D | | | 3 | 4 |
| | LT235/85R 16E | 1 | 3 | 3 | 4 |
| | 7.50 x 16D | | 3 | | 4 |
| | 7.50R x 16D | | | 3 | 4 |
| | 8.00 x 16.5D | | 4 | | 5 |
| | 8.75 x 16.5D | | 3 | | 5 |
| | 8.75 x 16.5E | 2 | 3 | | 5 |
| | 8.75R x 16.5E | 2 | 3 | | 5 |
| | 9.50 x 16.5E | | 3 | 3 | 4 |
| | 9.50R x 16.5E | 2 | 3 | 3 | 5 |

Powertrain — Automatic Transmission

SHIFT SPEEDS — ACTUAL M.P.H.

C6 Automatic Transmission
Trans. Models: PJE-A-B-C
A31DS

N.V.M. SAUTDA — 2005E3 TRIM
 2005 GM Transmissions & Components
 GM-R-101-2005E3-TRIM
 GM-A-101-2005E3-TRIM

| Throttle | Range | Shift | OPS-R.P.M. | COLUMN NUMBER | | | |
|---------------------------------|-------|---------|------------|---------------|---------|---------|--------|
| | | | | 1 | 2 | 3 | 4 |
| Closed (Above 17" Vacuum) | D | 1-2 | 270 Min. | 8 Min. | 7 Min. | 6 Min. | 6 Min. |
| | D | 2-3 | 450 Min. | 13 Min. | 11 Min. | 10 Min. | 9 Min. |
| | D | 3-1 | 270-330 | 8-10 | 7-8 | 6-8 | 6-7 |
| | 1 | 2-1 | 670-960 | 20-28 | 17-24 | 15-22 | 14-20 |
| To Detent (Torque Demand) | D | 1-2 | 940-1240 | 28-33 | 23-32 | 21-29 | 20-27 |
| | D | 2-3 | 1540-1840 | 45-54 | 39-46 | 35-42 | 32-40 |
| | D | 3-2 | 1050-1280 | 31-38 | 26-32 | 24-29 | 22-27 |
| Through Detent (W.O.T.) | D | 1-2 | 1080-1310 | 32-39 | 27-33 | 25-30 | 23-27 |
| | D | 2-3 | 1800-2030 | 53-60 | 45-51 | 41-46 | 38-42 |
| | D | 3-2 | 1680-1900 | 49-56 | 42-48 | 38-43 | 35-40 |
| | D | 3-1 2-1 | 750-1010 | 22-30 | 19-25 | 17-23 | 16-21 |

| Axe Ratio | TIRE SIZE | USE COLUMN NUMBER | | | |
|-----------|---------------|-------------------|------|------|------|
| | | 3.07 | 3.54 | 3.73 | 4.10 |
| | P195/75R 15SL | | | | |
| | P205/75R 15SL | | | | |
| | P215/75R 15SL | | | | |
| | P225/75R 15SL | | | | |
| | P235/75R 15XL | | | | |
| | LT215/85R 16C | | 2 | 3 | 4 |
| | LT215/85R 16D | | 2 | 3 | 4 |
| | LT235/85R 16D | | 2 | 2 | 3 |
| | LT235/85R 16E | 1 | 2 | 2 | 3 |
| | 7.50D x 16D | | 2 | | 3 |
| | 7.50R x 16D | | | 2 | 3 |
| | 8.00 x 16.5D | | 3 | 3 | 4 |
| | 8.75 x 16.5D | | 2 | 3 | 4 |
| | 8.75 x 16.5E | 1 | 2 | 3 | 4 |
| | 8.75R x 16.5E | 1 | 2 | 3 | 4 |
| | 9.50 x 16.5E | | 2 | 2 | 3 |
| | 9.50R x 16.5E | 1 | 2 | 2 | 3 |

Powertrain — Automatic Transmission

SHIFT SPEEDS — ACTUAL M.P.H.

C6 Automatic Transmission

Trans. Models: PJE-B-C

(Altitude) A31DB

| Throttle | Range | Shift | OPS-R.P.M. | COLUMN NUMBER | | | |
|---------------------------------|-------|---------|------------|---------------|--------|--------|-------|
| | | | | 1 | 2 | 3 | 4 |
| Closed (Above 17" Vacuum) | D | 1-2 | 270 Min | 8 Min | 7 Min | 6 Min | 6 Min |
| | D | 2-3 | 450 Min | 13 Min | 11 Min | 10 Min | 9 Min |
| | D | 3-1 | 270-330 | 8-10 | 7-8 | 6-8 | 6-7 |
| | 1 | 2-1 | 670-960 | 20-28 | 17-24 | 15-22 | 14-20 |
| To Detent (Torque Demand) | D | 1-2 | 870-1260 | 26-37 | 22-32 | 20-29 | 18-26 |
| | D | 2-3 | 1440-1870 | 43-55 | 36-47 | 33-43 | 30-39 |
| | D | 3-2 | 1200-1650 | 35-49 | 30-41 | 27-38 | 25-34 |
| Through Detent (W.O.T.) | D | 1-2 | 1060-1330 | 31-39 | 27-33 | 24-30 | 22-28 |
| | D | 2-3 | 1770-2050 | 52-60 | 44-51 | 40-47 | 37-43 |
| | D | 3-2 | 1650-1920 | 49-52 | 42-48 | 38-43 | 35-40 |
| | D | 3-1 2-1 | 730-1020 | 22-30 | 19-25 | 17-23 | 16-21 |

| Axe Ratio | TIRE SIZE | USE COLUMN NUMBER | | | |
|-----------|---------------|-------------------|------|------|------|
| | | 3.07 | 3.54 | 3.73 | 4.10 |
| | P195/75R 15SL | | | | |
| | P205/75R 15SL | | | | |
| | P215/75R 15SL | | | | |
| | P225/75R 15SL | | | | |
| | P235/75R 15XL | | | | |
| | LT215/85R 16C | | 2 | 3 | 4 |
| | LT215/85R 16D | | 2 | 3 | 4 |
| | LT235/85R 16D | | 2 | 2 | 3 |
| | LT235/85R 16E | 1 | 2 | 2 | 3 |
| | 7.50D x 16D | | 2 | | 3 |
| | 7.50R x 16D | | | 2 | 3 |
| | 8.00 x 16.5D | | 3 | 3 | 4 |
| | 8.75 x 16.5D | | 2 | 3 | 4 |
| | 8.75 x 16.5E | 1 | 2 | 3 | 4 |
| | 8.75R x 16.5E | 1 | 2 | 3 | 4 |
| | 9.50 x 16.5E | | 2 | 2 | 3 |
| | 9.50R x 16.5E | 1 | 2 | 2 | 3 |

Powertrain — Automatic Transmission

SHIFT SPEEDS — ACTUAL M.P.H.

Automatic Overdrive Transmission

5.0L Carburetor E150/E250 3.50/3.73 A/R

49S/Calif./Can. PKB-A

| Throttle | Range | Shift | OPS — R.P.M. | COLUMN NUMBER | | | | | |
|-----------------------------|--------|----------|--------------|---------------|-------|-------|-------|-------|---|
| | | | | 1 | 2 | 3 | 4 | 5 | 6 |
| Closed Throttle See Note | (D), D | 1-2 | 290-420 | 6-9 | 6-10 | 6-10 | 7-10 | 6-10 | |
| | (D), D | 2-3 | 650-810 | 14-18 | 15-19 | 15-19 | 16-20 | 15-19 | |
| | (D) | 3-4 | 1470-1820 | 32-40 | 34-42 | 35-43 | 36-45 | 34-43 | |
| | (D) | 4-3 | 1620-1270 | 35-28 | 37-30 | 38-30 | 40-31 | 38-30 | |
| | (D), D | 3-2 | 780-630 | 17-14 | 18-15 | 18-15 | 19-16 | 18-15 | |
| | (D), D | 2-1 | 370-230 | 8-5 | 8-5 | 8-5 | 9-6 | 8-5 | |
| | 1 | 3-1, 2-1 | 1100-730 | 24-16 | 25-17 | 26-17 | 27-18 | 25-17 | |
| Part Throttle See Note | (D), D | 1-2 | 590-860 | 13-19 | 13-20 | 14-20 | 14-21 | 13-20 | |
| | (D), D | 2-3 | 1180-1570 | 26-35 | 27-36 | 28-37 | 29-39 | 27-27 | |
| | (D) | 3-4 | 1730-2300 | 38-51 | 40-53 | 41-55 | 42-57 | 40-54 | |
| | (D) | 4-3 | 1750-1380 | 38-31 | 40-32 | 41-33 | 43-34 | 41-32 | |
| | (D), D | 3-2 | 1210-760 | 26-17 | 28-18 | 28-18 | 29-19 | 28-18 | |
| | (D), D | 2-1 | 640-420 | 14-9 | 14-10 | 15-10 | 15-10 | 15-10 | |
| Wide Open See Note | (D), D | 1-2 | 1220-1710 | 27-38 | 28-40 | 29-41 | 30-42 | 28-40 | |
| | (D), D | 2-3 | 2340-2690 | 51-60 | 54-63 | 55-64 | 57-66 | 55-63 | |
| | (D), D | 3-2 | 2250-1900 | 49-42 | 52-44 | 53-45 | 55-47 | 52-44 | |
| | (D), D | 2-1 | 1360-900 | 30-20 | 31-21 | 32-21 | 33-22 | 31-21 | |

| Axle Ratio | TIRE SIZE | USE COLUMN NUMBER | | | | | |
|------------|---------------|-------------------|------|------|--|--|--|
| | | 3.50 | 3.55 | 3.73 | | | |
| | P205/75R 15SL | 1 | | | | | |
| | P225/75R 15SL | 2 | | | | | |
| | P235/75R 15XL | 3 | | | | | |
| | LT215/85R 16D | | 4 | 5 | | | |
| | 8.00 x 16.5D | | 2 | 1 | | | |
| | 8.75 x 16.5E | | 3 | 2 | | | |

NOTE:

Part throttle shift speeds cannot be checked unless a TV pressure gage is installed. Use 0-100 psi gage.

All part throttle shift speeds except 3-4 and 4-3 are for a TV pressure of 60 psi. The 4-3 and 3-4 part throttle shift speeds are quoted at a different throttle setting — 40 psi — to keep them within a reasonable speed range.

TV pressure should be 0 psi (or less than 5 psi) at closed throttle. If it is not, check the following in this order:

- 1) TV linkage not returning at idle due to interference of engine hoses, binding condition, or return spring at carburetor not returning TV lever.
- 2) TV linkage misadjusted (either long rod or short cable condition).
- 3) Throttle plunger in main control binding due to bolt torque out of spec. or contamination.

TV pressure at wide open throttle should be within specification (79-91 psi for 5.0L, 5.0L HO and 5.8L, 74-86 psi for 4.9L and 3.8L).

Powertrain — Automatic Transmission

SHIFT SPEEDS — ACTUAL M.P.H.

Automatic Overdrive Transmission

5.0L Carburetor 3.55 A/R, E150/250,
49S/Calif./Can., PKB-A

| Throttle | Range | Shift | OPS — R.P.M. | COLUMN NUMBER | | | | | |
|-----------------------------|-----------------------|----------|--------------|---------------|-------|-------|-------|-------|-------|
| | | | | 1 | 2 | 3 | 4 | 5 | 6 |
| Closed Throttle See Note | (D), D | 1-2 | 290-420 | 6-9 | 6-10 | 6-9 | 7-11 | 7-10 | 7-11 |
| | (D), D | 2-3 | 650-8110 | 14-18 | 15-19 | 14-18 | 16-21 | 16-20 | 16-21 |
| | (D) | 3-4 | 1470-1820 | 32-41 | 34-42 | 31-39 | 38-47 | 36-45 | 38-47 |
| | (D) | 4-3 | 1620-1270 | 36-28 | 38-30 | 35-28 | 42-33 | 40-31 | 41-33 |
| | (D), D | 3-2 | 780-630 | 17-14 | 18-14 | 16-14 | 20-16 | 19-16 | 20-16 |
| | (D), D | 2-1 | 370-230 | 8-5 | 8-5 | 8-5 | 9-6 | 9-6 | 9-6 |
| | 1 | 3-1, 2-1 | 1100-730 | 24-16 | 25-17 | 23-16 | 28-19 | 27-18 | 28-19 |
| Part Throttle See Note | (D), D | 1-2 | 590-860 | 13-19 | 13-20 | 12-19 | 15-22 | 14-21 | 15-22 |
| | (D), D | 2-3 | 1180-1570 | 26-35 | 27-37 | 35-34 | 30-41 | 29-39 | 30-41 |
| | (D) | 3-4 | 1730-2300 | 38-51 | 40-54 | 37-50 | 44-60 | 42-57 | 44-59 |
| | (D) | 4-3 | 1750-1380 | 39-30 | 41-32 | 37-30 | 45-36 | 43-34 | 45-36 |
| | (D), D | 3-2 | 1210-760 | 27-17 | 28-18 | 26-16 | 31-20 | 29-19 | 31-20 |
| | (D), D | 2-1 | 640-420 | 14-9 | 15-10 | 13-9 | 16-11 | 15-10 | 16-11 |
| | WIDE OPEN See Note | 1-2 | 1220-1710 | 27-38 | 28-40 | 26-37 | 31-44 | 30-42 | 31-44 |
| | (D), D | 2-3 | 2340-2690 | 52-60 | 55-63 | 50-58 | 60-70 | 57-66 | 60-69 |
| | (D), D | 3-2 | 2250-1900 | 50-42 | 52-45 | 48-41 | 58-49 | 55-47 | 58-49 |
| | (D), D | 2-1 | 1360-900 | 30-20 | 31-21 | 29-19 | 35-23 | 33-22 | 35-23 |

| Axle Ratio | TIRE SIZE | USE COLUMN NUMBER | | | | | |
|------------|---------------|-------------------|--|--|--|--|--|
| | | 3.55 | | | | | |
| | P215/75R 15SL | 1 | | | | | |
| | P235/75R 15XL | 2 | | | | | |
| | P195/75R 15SL | 3 | | | | | |
| | 7.50R X 16D | 4 | | | | | |
| | LT215/85R 16C | 5 | | | | | |
| | LT215/85R 16D | 5 | | | | | |
| | LT235/85R 16E | 6 | | | | | |
| | LT235/85R 16D | 6 | | | | | |

NOTE:

Part throttle shift speeds cannot be checked unless a TV pressure gage is installed. Use 0-100 psi gage.

All part throttle shift speeds except 3-4 and 4-3 are for a TV pressure of 60 psi. The 4-3 and 3-4 part throttle shift speeds are quoted at a different throttle setting —40 psi — to keep them within a reasonable speed range.

TV pressure should be 0 psi (or less than 5 psi) at closed throttle. If it is not, check the following in this order:

- 1) TV linkage not returning at idle due to interference of engine hoses, binding condition, or return spring at carburetor not returning TV lever.
- 2) TV linkage misadjusted (either long rod or short cable condition).
- 3) Throttle plunger in main control binding due to bolt torque out of spec. or contamination.

TV pressure at wide open throttle should be within specification (79-91 psi for 5.0L, 5.0L HO and 5.8L, 74-86 psi for 4.9L and 3.8L).

Powertrain — Automatic Transmission

SHIFT SPEEDS — ACTUAL M.P.H.

Automatic Overdrive Transmission

4.9L 3.08 A/R, F150,

49S/Calif./Can., PKB-E

| Throttle | Range | Shift | OPS — R.P.M. | COLUMN NUMBER | | | | | |
|-----------------------------|--------|----------|--------------|---------------|-------|-------|---|---|---|
| | | | | 1 | 2 | 3 | 4 | 5 | 6 |
| Closed Throttle See Note | (D), D | 1-2 | 290-420 | 7-11 | 7-11 | 7-10 | | | |
| | (D), D | 2-3 | 650-810 | 16-21 | 17-22 | 16-20 | | | |
| | (D) | 3-4 | 1470-1820 | 37-47 | 39-49 | 36-45 | | | |
| | (D) | 4-3 | 1620-1270 | 41-33 | 43-34 | 40-32 | | | |
| | (D), D | 3-2 | 780-630 | 20-16 | 21-17 | 19-16 | | | |
| | (D), D | 2-1 | 370-230 | 9-6 | 10-6 | 9-6 | | | |
| | 1 | 3-1, 2-1 | 1100-730 | 28-19 | 29-20 | 27-18 | | | |
| Part Throttle See Note | (D), D | 1-2 | 590-860 | 15-22 | 16-23 | 14-21 | | | |
| | (D), D | 2-3 | 1180-1570 | 30-41 | 32-42 | 29-39 | | | |
| | (D) | 3-4 | 1730-2300 | 44-59 | 46-62 | 43-57 | | | |
| | (D) | 4-3 | 1750-1380 | 45-36 | 47-37 | 43-34 | | | |
| | (D), D | 3-2 | 1210-760 | 31-20 | 32-20 | 30-19 | | | |
| | (D), D | 2-1 | 640-420 | 16-11 | 17-11 | 16-10 | | | |
| | | | | | | | | | |
| Wide Open See Note | (D), D | 1-2 | 1130-1640 | 29-42 | 30-44 | 28-41 | | | |
| | (D), D | 2-3 | 2260-2620 | 58-68 | 61-71 | 56-65 | | | |
| | (D), D | 3-2 | 2180-1820 | 56-47 | 59-49 | 54-45 | | | |
| | (D), D | 2-1 | 1300-770 | 33-20 | 35-21 | 32-19 | | | |

| Aisle Ratio | TIRE SIZE | USE COLUMN NUMBER | | | | | |
|-------------|-------------|-------------------|--|--|--|--|--|
| | | 3.08 | | | | | |
| | P215/75R 15 | 1 | | | | | |
| | P235/75R 15 | 2 | | | | | |
| | P195/75R 15 | 3 | | | | | |

NOTE:

Part throttle shift speeds cannot be checked unless a TV pressure gage is installed. Use 0-100 psi gage.

All part throttle shift speeds except 3-4 and 4-3 are for a TV pressure of 60 psi. The 4-3 and 3-4 part throttle shift speeds are quoted at a different throttle setting — 40 psi — to keep them within a reasonable speed range.

TV pressure should be 0 psi (or less than 5 psi) at closed throttle. If it is not, check the following in this order:

- 1) TV linkage not returning at idle due to interference of engine hoses, binding condition, or return spring at carburetor not returning TV lever.
- 2) TV linkage misadjusted (either long rod or short cable condition).
- 3) Throttle plunger in main control binding due to bolt torque out of spec. or contamination.

TV pressure at wide open throttle should be within specification (79-91 psi for 5.0L, 5.0L HO and 5.8L, 74-86 psi for 4.9L and 3.8L).

Powertrain — Automatic Transmission

SHIFT SPEEDS — ACTUAL M.P.H.

Automatic Overdrive Transmission

4.9L, 3.55, 3.73 A/R, E250, 110/250

49S/Calif./Can./Alt., PKB-F

| Throttle | Range | Shift | OPS — R.P.M. | COLUMN NUMBER | | | | | |
|-----------------------------|--------|----------|--------------|---------------|-------|-------|-------|-------|---|
| | | | | 1 | 2 | 3 | 4 | 5 | 6 |
| Closed Throttle See Note | (D), D | 1-2 | 290-420 | 7-10 | 6-10 | 6-10 | 6-9 | 6-10 | |
| | (D), D | 2-3 | 650-810 | 16-20 | 15-19 | 14-19 | 14-18 | 15-19 | |
| | (D) | 3-4 | 1590-1890 | 39-47 | 37-44 | 36-43 | 34-41 | 38-45 | |
| | (D) | 4-3 | 1700-1410 | 42-35 | 39-33 | 38-32 | 37-31 | 40-34 | |
| | (D), D | 3-2 | 780-630 | 19-16 | 18-15 | 17-14 | 17-14 | 18-15 | |
| | (D), D | 2-1 | 370-230 | 9-6 | 8-5 | 8-5 | 8-5 | 8-5 | |
| | 1 | 3-1, 2-1 | 1100-730 | 27-18 | 25-17 | 25-17 | 24-16 | 26-17 | |
| Part Throttle See Note | (D), D | 1-2 | 590-860 | 14-21 | 13-20 | 13-20 | 12-19 | 14-21 | |
| | (D), D | 2-3 | 1180-1570 | 29-39 | 27-37 | 27-36 | 25-34 | 28-38 | |
| | (D) | 3-4 | 1830-2360 | 45-58 | 43-55 | 41-54 | 39-51 | 43-56 | |
| | (D) | 4-3 | 1830-1500 | 45-37 | 43-35 | 41-34 | 39-33 | 43-36 | |
| | (D), D | 3-2 | 1210-760 | 29-19 | 28-18 | 27-17 | 26-17 | 28-18 | |
| | (D), D | 2-1 | 640-420 | 15-10 | 15-10 | 14-9 | 13-9 | 15-10 | |
| | | | | | | | | | |
| Wide Open See Note | (D), D | 1-2 | 1130-1640 | 27-40 | 26-39 | 25-38 | 24-36 | 27-39 | |
| | (D), D | 2-3 | 2260-2620 | 55-65 | 53-61 | 51-60 | 49-57 | 54-63 | |
| | (D), D | 3-2 | 2180-1820 | 53-45 | 51-43 | 49-42 | 47-40 | 52-43 | |
| | (D), D | 2-1 | 1300-770 | 32-19 | 30-18 | 29-18 | 28-17 | 31-18 | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |

| Aisle Ratio | TIRE SIZE | USE COLUMN NUMBER | | | | | |
|-------------|---------------|-------------------|------|--|--|--|--|
| | | 3.55 | 3.73 | | | | |
| | LT215/85R 16D | 1 | 2 | | | | |
| | 8.0 x 16.5D | 3 | 4 | | | | |
| | 8.75 x 16.5E | 5 | 3 | | | | |

NOTE:

Part throttle shift speeds cannot be checked unless a TV pressure gage is installed. Use 0-100 psi gage.

All part throttle shift speeds except 3-4 and 4-3 are for a TV pressure of 60 psi. The 4-3 and 3-4 part throttle shift speeds are quoted at a different throttle setting — 40 psi — to keep them within a reasonable speed range.

TV pressure should be 0 psi (or less than 5 psi) at closed throttle. If it is not, check the following in this order:

- 1) TV linkage not returning at idle due to interference of engine hoses, binding condition, or return spring at carburetor not returning TV lever.
- 2) TV linkage misadjusted (either long rod or short cable condition).
- 3) Throttle plunger in main control binding due to bolt torque out of spec. or contamination.

TV pressure at wide open throttle should be within specification (79-91 psi for 5.0L, 5.0L HO and 5.8L, 74-86 psi for 4.9L and 3.8L).

Powertrain — Automatic Transmission

SHIFT SPEEDS — ACTUAL M.P.H.

**Automatic Overdrive Transmission
4.9L, 3.50, 3.55 A/R, E150/F150,
49S/Calif./Can./ Altitude, PKB-F**

| Throttle | Range | Shift | OPS — R.P.M. | COLUMN NUMBER | | | | | |
|-----------------------------|--------|----------|--------------|---------------|-------|-------|-------|---|---|
| | | | | 1 | 2 | 3 | 4 | 5 | 6 |
| Closed Throttle See Note | (D, D) | 1-2 | 290-420 | 6-9 | 6-9 | 6-10 | 6-9 | | |
| | (D, D) | 2-3 | 650-810 | 14-18 | 15-19 | 15-19 | 14-18 | | |
| | (D) | 3-4 | 1590-1890 | 35-42 | 36-44 | 37-45 | 34-41 | | |
| | (D) | 4-3 | 1700-1410 | 37-31 | 39-33 | 40-34 | 36-31 | | |
| | (D, D) | 3-2 | 780-630 | 17-14 | 18-15 | 18-15 | 16-14 | | |
| | (D, D) | 2-1 | 370-230 | 8-5 | 8-5 | 8-5 | 8-5 | | |
| | 1 | 3-1, 2-1 | 1100-730 | 24-16 | 25-17 | 26-17 | 23-16 | | |
| Part Throttle See Note | (D, D) | 1-2 | 590-860 | 13-19 | 14-20 | 14-20 | 12-19 | | |
| | (D, D) | 2-3 | 1180-1570 | 26-35 | 27-36 | 28-37 | 25-34 | | |
| | (D) | 3-4 | 1830-2360 | 40-52 | 42-55 | 43-56 | 40-51 | | |
| | (D) | 4-3 | 1830-1500 | 40-33 | 42-35 | 43-36 | 39-32 | | |
| | (D, D) | 3-2 | 1210-760 | 26-17 | 28-18 | 28-18 | 26-16 | | |
| | (D, D) | 2-1 | 640-420 | 14-9 | 14-9 | 15-10 | 13-9 | | |
| Wide Open See Note | (D, D) | 1-2 | 1130-1640 | 25-36 | 26-38 | 26-39 | 24-36 | | |
| | (D, D) | 2-3 | 2260-2620 | 50-58 | 52-61 | 53-62 | 48-57 | | |
| | (D, D) | 3-2 | 2180-1820 | 48-40 | 50-42 | 51-43 | 47-39 | | |
| | (D, D) | 2-1 | 1300-770 | 28-17 | 30-18 | 30-18 | 28-17 | | |

| Aisle Ratio | TIRE SIZE | USE COLUMN NUMBER | | | | | |
|-------------|---------------|-------------------|------|--|--|--|--|
| | | 3.50 | 3.55 | | | | |
| | P205/75R 15SL | 1 | | | | | |
| | P225/75R 15SL | 2 | | | | | |
| | P235/75R 15XL | 3 | | | | | |
| | P215/75R 15SL | | 1 | | | | |
| | P235/75R 15XL | | 3 | | | | |
| | P195/75R 15SL | | 4 | | | | |

NOTE:
Part throttle shift speeds cannot be checked unless a TV pressure gage is installed.
Use 0-100 psi gage.

All part throttle shift speeds except 3-4 and 4-3 are for a TV pressure of 60 psi. The 4-3 and 3-4 part throttle shift speeds are quoted at a different throttle setting — 40 psi — to keep them within a reasonable speed range.

TV pressure should be 0 psi (or less than 5 psi) at closed throttle. If it is not, check the following in this order:

- 1) TV linkage not returning at idle due to interference of engine hoses, binding condition, or return spring at carburetor not returning TV lever.
- 2) TV linkage misadjusted (either long rod or short cable condition).
- 3) Throttle plunger in main control binding due to bolt torque out of spec. or contamination.

TV pressure at wide open throttle should be within specification (79-91 psi for 5.0L, 5.0L HO and 5.8L, 74-86 psi for 4.9L and 3.8L).

Powertrain — Automatic Transmission

SHIFT SPEEDS — ACTUAL M.P.H.

**Automatic Overdrive Transmission
5.0L EFI 3.55, 3.73, A/R, F150/250,
49S/Calif./Can./Alt., PKB-J**

| Throttle | Range | Shift | OPS — R.P.M. | COLUMN NUMBER | | | | | |
|-----------------------------|--------|----------|--------------|---------------|-------|-------|-------|---|---|
| | | | | 1 | 2 | 3 | 4 | 5 | 6 |
| Closed Throttle See Note | (D), D | 1-2 | 370-530 | 8-12 | 8-12 | 8-11 | 9-13 | | |
| | (D), D | 2-3 | 720-890 | 16-20 | 17-21 | 15-19 | 18-22 | | |
| | (D) | 3-4 | 1460-1850 | 32-41 | 34-43 | 31-40 | 36-46 | | |
| | (D) | 4-3 | 1580-1200 | 35-27 | 37-28 | 34-26 | 39-30 | | |
| | (D), D | 3-2 | 870-700 | 19-16 | 20-16 | 18-15 | 21-17 | | |
| | (D), D | 2-1 | 470-320 | 10-7 | 11-7 | 10-7 | 11-8 | | |
| | 1 | 3-1, 2-1 | 1230-810 | 27-18 | 29-19 | 26-18 | 30-20 | | |
| Part Throttle See Note | (D), D | 1-2 | 670-1050 | 15-24 | 15-25 | 14-23 | 16-26 | | |
| | (D), D | 2-3 | 1350-1780 | 30-40 | 31-42 | 29-39 | 33-44 | | |
| | (D) | 3-4 | 1790-2420 | 40-54 | 42-57 | 38-52 | 44-60 | | |
| | (D) | 4-3 | 1760-1340 | 39-30 | 41-32 | 38-29 | 43-33 | | |
| | (D), D | 3-2 | 1390-830 | 31-19 | 32-20 | 30-18 | 34-20 | | |
| | (D), D | 2-1 | 750-500 | 16-11 | 17-12 | 16-11 | 18-12 | | |
| | | | | | | | | | |
| Wide Open See Note | (D), D | 1-2 | 1400-1940 | 31-43 | 32-45 | 30-42 | 34-48 | | |
| | (D), D | 2-3 | 2650-3020 | 59-68 | 62-71 | 57-65 | 65-75 | | |
| | (D), D | 3-2 | 2530-2170 | 56-49 | 59-51 | 54-47 | 65-54 | | |
| | (D), D | 2-1 | 1560-1060 | 34-24 | 23-25 | 33-23 | 38-26 | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |

| Axle Ratio | TIRE SIZE | USE COLUMN NUMBER | | | | | |
|------------|---------------|-------------------|------|--|--|--|--|
| | | 3.55 | 3.73 | | | | |
| | P215/75R 15SL | 1 | | | | | |
| | P235/75R 15XL | 2 | | | | | |
| | P195/75R 15SL | 3 | | | | | |
| | 7.5R x 16D | | 4 | | | | |
| | LT215/85R 16D | | 2 | | | | |
| | LT235/85R 16E | | 4 | | | | |

NOTE:

Part throttle shift speeds cannot be checked unless a TV pressure gage is installed. Use 0-100 psi gage.

All part throttle shift speeds except 3-4 and 4-3 are for a TV pressure of 60 psi. The 4-3 and 3-4 part throttle shift speeds are quoted at a different throttle setting — 40 psi — to keep them within a reasonable speed range.

TV pressure should be 0 psi (or less than 5 psi) at closed throttle. If it is not, check the following in this order:

- 1) TV linkage not returning at idle due to interference of engine hoses, binding condition, or return spring at carburetor not returning TV lever.
- 2) TV linkage misadjusted (either long rod or short cable condition).
- 3) Throttle plunger in main control binding due to bolt torque out of spec. or contamination.

TV pressure at wide open throttle should be within specification (79-91 psi for 5.0L, 5.0L HO and 5.8L, 74-86 psi for 4.9L and 3.8L).

Powertrain — Automatic Transmission

SHIFT SPEEDS — ACTUAL M.P.H.

Automatic Overdrive Transmission

5.0L EFI 3.54/3.55 A/R,
Bronco, F150, F250 4x4,
50S/Can./Alt., PKB-K

| Throttle | Range | Shift | OPS — R.P.M. | COLUMN NUMBER | | | | | |
|-----------------------------|--------|----------|--------------|---------------|-------|-------|---|---|---|
| | | | | 1 | 2 | 3 | 4 | 5 | 6 |
| Closed Throttle See Note | (D), D | 1-2 | 370-530 | 8-12 | 9-13 | 9-14 | | | |
| | (D), D | 2-3 | 720-890 | 16-21 | 17-22 | 18-23 | | | |
| | (D) | 3-4 | 1460-1850 | 34-43 | 36-46 | 37-48 | | | |
| | (D) | 4-3 | 1580-1200 | 37-28 | 39-30 | 41-31 | | | |
| | (D), D | 3-2 | 870-700 | 20-16 | 21-17 | 22-18 | | | |
| | (D), D | 2-1 | 470-320 | 11-7 | 11-8 | 12-8 | | | |
| | 1 | 3-1, 2-1 | 1230-810 | 28-19 | 30-20 | 32-21 | | | |
| Part Throttle See Note | (D), D | 1-2 | 670-1050 | 15-25 | 16-26 | 17-27 | | | |
| | (D), D | 2-3 | 1350-1780 | 31-42 | 33-44 | 35-46 | | | |
| | (D) | 3-4 | 1790-2420 | 42-57 | 44-60 | 46-63 | | | |
| | (D) | 4-3 | 1760-1340 | 41-31 | 43-33 | 45-34 | | | |
| | (D), D | 3-2 | 1390-830 | 32-20 | 34-21 | 36-22 | | | |
| | (D), D | 2-1 | 750-500 | 17-11 | 18-12 | 19-13 | | | |
| Wide Open See Note | (D), D | 1-2 | 1400-1940 | 32-46 | 34-48 | 36-50 | | | |
| | (D), D | 2-3 | 2650-3020 | 62-71 | 66-75 | 68-78 | | | |
| | (D), D | 3-2 | 2530-2170 | 59-51 | 63-54 | 65-56 | | | |
| | (D), D | 2-1 | 1560-1060 | 36-25 | 38-26 | 40-28 | | | |

| Aisle Ratio | TIRE SIZE | USE COLUMN NUMBER | | | | | |
|-------------|---------------|-------------------|------|--|--|--|--|
| | | 3.55 | 3.54 | | | | |
| | P235/75R 15XL | 1 | | | | | |
| | 10 x 15C | 2 | | | | | |
| | 7.50 x 16D | | 3 | | | | |
| | LT215/85R 16D | | 2 | | | | |
| | LT235/85R 16D | | 3 | | | | |
| | LT235/85R 16E | | 3 | | | | |

NOTE:

Part throttle shift speeds cannot be checked unless a TV pressure gage is installed.
Use 0-100 psi gage.

All part throttle shift speeds except 3-4 and 4-3 are for a TV pressure of 60 psi. The 4-3 and 3-4 part throttle shift speeds are quoted at a different throttle setting — 40 psi — to keep them within a reasonable speed range.

TV pressure should be 0 psi (or less than 5 psi) at closed throttle. If it is not, check the following in this order:

- 1) TV linkage not returning at idle due to interference of engine hoses, binding condition, or return spring at carburetor not returning TV lever.
- 2) TV linkage misadjusted (either long rod or short cable condition).
- 3) Throttle plunger in main control binding due to bolt torque out of spec. or contamination.

TV pressure at wide open throttle should be within specification (79-91 psi for 5.0L, 5.0L HO and 5.8L, 74-86 psi for 4.9L and 3.8L).

Powertrain — Automatic Transmission

SHIFT SPEEDS — ACTUAL M.P.H.

Automatic Overdrive Transmission

5.0L EFI 4.10 A/R, F250,
49S/Calif./Can./Altitude, PKB-L

| Throttle | Range | Shift | OPS — R.P.M. | COLUMN NUMBER | | | | | |
|-----------------------------|--------|----------|--------------|---------------|-------|-------|---|---|---|
| | | | | 1 | 2 | 3 | 4 | 5 | 6 |
| Closed Throttle See Note | (D), D | 1-2 | 370-530 | 8-12 | 7-11 | 8-12 | | | |
| | (D), D | 2-3 | 740-900 | 16-20 | 15-19 | 16-20 | | | |
| | (D) | 3-4 | 1600-1960 | 35-44 | 34-42 | 35-44 | | | |
| | (D) | 4-3 | 1720-1350 | 38-30 | 36-29 | 38-30 | | | |
| | (D), D | 3-2 | 870-720 | 19-16 | 18-15 | 19-16 | | | |
| | (D), D | 2-1 | 470-320 | 10-7 | 10-7 | 10-7 | | | |
| | 1 | 3-1, 2-1 | 1230-810 | 27-18 | 26-17 | 27-18 | | | |
| Part Throttle See Note | (D), D | 1-2 | 770-1220 | 17-27 | 16-26 | 17-27 | | | |
| | (D), D | 2-3 | 1570-1940 | 35-43 | 33-41 | 35-43 | | | |
| | (D) | 3-4 | 1890-2510 | 42-56 | 40-54 | 42-56 | | | |
| | (D) | 4-3 | 1810-1480 | 42-33 | 40-32 | 42-33 | | | |
| | (D), D | 3-2 | 1670-1270 | 37-29 | 35-27 | 37-28 | | | |
| | (D), D | 2-1 | 790-580 | 17-13 | 16-12 | 17-13 | | | |
| Wide Open See Note | (D), D | 1-2 | 1610-2030 | 36-46 | 34-43 | 36-45 | | | |
| | (D), D | 2-3 | 2760-3110 | 62-70 | 59-67 | 61-70 | | | |
| | (D), D | 3-2 | 2690-2360 | 60-53 | 57-50 | 60-53 | | | |
| | (D), D | 2-1 | 1630-1220 | 36-27 | 34-26 | 36-27 | | | |

| Aisle Ratio | TIRE SIZE | USE COLUMN NUMBER | | | | | |
|-------------|---------------|-------------------|--|--|--|--|--|
| | | 4.10 | | | | | |
| | 7.5R x 16D | 1 | | | | | |
| | LT215/85R 16D | 2 | | | | | |
| | LT235/85R 16E | 3 | | | | | |

NOTE:

Part throttle shift speeds cannot be checked unless a TV pressure gage is installed. Use 0-100 psi gage.

All part throttle shift speeds except 3-4 and 4-3 are for a TV pressure of 60 psi. The 4-3 and 3-4 part throttle shift speeds are quoted at a different throttle setting — 40 psi — to keep them within a reasonable speed range.

TV pressure should be 0 psi (or less than 5 psi) at closed throttle. If it is not, check the following in this order:

- 1) TV linkage not returning at idle due to interference of engine hoses, binding condition, or return spring at carburetor not returning TV lever.
- 2) TV linkage misadjusted (either long rod or short cable condition).
- 3) Throttle plunger in main control binding due to bolt torque out of spec. or contamination.

TV pressure at wide open throttle should be within specification (79-91 psi for 5.0L, 5.0L HO and 5.8L, 74-86 psi for 4.9L and 3.8L).

Powertrain — Automatic Transmission

SHIFT SPEEDS — ACTUAL M.P.H.

Automatic Overdrive Transmission

5.0L EFI 4.10, 4.11 A/R,

Bronco/F150/250 4x4,

49S/Calif./Can./Altitude,

PKB-M

| Throttle | Range | Shift | OPS — R.P.M. | COLUMN NUMBER | | | | | |
|-----------------------------|--------|----------|--------------|---------------|-------|-------|---|---|---|
| | | | | 1 | 2 | 3 | 4 | 5 | 6 |
| Closed Throttle See Note | (D), D | 1-2 | 370-530 | 8-12 | 8-11 | 7-11 | | | |
| | (D), D | 2-3 | 740-900 | 16-20 | 16-19 | 15-18 | | | |
| | (D) | 3-4 | 1600-1960 | 35-44 | 34-42 | 33-40 | | | |
| | (D) | 4-3 | 1720-1350 | 38-30 | 37-29 | 35-28 | | | |
| | (D), D | 3-2 | 870-720 | 19-16 | 18-15 | 17-15 | | | |
| | (D), D | 2-1 | 470-320 | 10-7 | 10-7 | 9-6 | | | |
| | 1 | 3-1, 2-1 | 1230-810 | 27-18 | 26-17 | 25-16 | | | |
| Part Throttle See Note | (D), D | 1-2 | 770-1220 | 17-27 | 16-26 | 15-25 | | | |
| | (D), D | 2-3 | 1570-1940 | 35-43 | 33-42 | 32-40 | | | |
| | (D) | 3-4 | 1890-2510 | 42-56 | 40-54 | 39-51 | | | |
| | (D) | 4-3 | 1890-1480 | 42-33 | 40-32 | 38-30 | | | |
| | (D), D | 3-2 | 1670-1270 | 37-28 | 36-27 | 34-26 | | | |
| | (D), D | 2-1 | 790-580 | 17-13 | 17-12 | 16-12 | | | |
| | | | | | | | | | |
| Wide Open See Note | (D), D | 1-2 | 1610-2030 | 36-46 | 34-44 | 33-42 | | | |
| | (D), D | 2-3 | 2760-3110 | 62-70 | 59-67 | 56-64 | | | |
| | (D), D | 3-2 | 2690-2360 | 60-53 | 58-51 | 55-48 | | | |
| | (D), D | 2-1 | 1630-1220 | 37-27 | 35-26 | 33-25 | | | |

| Axle Ratio | TIRE SIZE | USE COLUMN NUMBER | | | | | |
|------------|---------------|-------------------|------|--|--|--|--|
| | | 4.10 | 4.11 | | | | |
| | 7.50 x 16D | 1 | | | | | |
| | LT215/85R 16D | 2 | | | | | |
| | LT235/85R 16D | 1 | | | | | |
| | LT235/85R 16E | 1 | | | | | |
| | P235/75R XL | | 3 | | | | |
| | 10 x 15C | | 2 | | | | |

NOTE:

Part throttle shift speeds cannot be checked unless a TV pressure gage is installed. Use 0-100 psi gage.

All part throttle shift speeds except 3-4 and 4-3 are for a TV pressure of 60 psi. The 4-3 and 3-4 part throttle shift speeds are quoted at a different throttle setting — 40 psi — to keep them within a reasonable speed range.

TV pressure should be 0 psi (or less than 5 psi) at closed throttle. If it is not, check the following in this order:

- 1) TV linkage not returning at idle due to interference of engine hoses, binding condition, or return spring at carburetor not returning TV lever.
- 2) TV linkage misadjusted (either long rod or short cable condition).
- 3) Throttle plunger in main control binding due to bolt torque out of spec. or contamination.

TV pressure at wide open throttle should be within specification (79-91 psi for 5.0L, 5.0L HO and 5.8L, 74-86 psi for 4.9L and 3.8L).

Powertrain — Automatic Transmission

SERVICE SPECIFICATIONS

Stall Speeds — All Vehicles

| Vehicle | Engine/Litre Displacement | Transmission Type | Converter | | Stall Speed (RPM) | |
|---|------------------------------|----------------------|------------------|-------|----------------------|------|
| | | | Size (Inches) | ID | Min. | Max. |
| Ranger 4x2 | 2.3L | C3 | 10-1/4" | HA | 2381 | 2760 |
| Ranger 4x4 | 2.3L | C5 | 10-1/4" | BU | 2675 | 3068 |
| | 3.8L | C5 | 12" | GB | 1737 | 2022 |
| F-150/250, E-150/250 | 4.9L, 5.0L | C6 | 12" | 99 | 1616 | 1871 |
| F-350/E-350 | 4.9L, 5.0L | C6 | 12" | 99 | 1616 | 1871 |
| F-150 (49S/Canada) | 4.9L, 5.0L | C6 | 12" | 99 | 1616 | 1871 |
| F-150 (50S)/F-250 (49S), E-150/250 | 4.9L, 5.0L | C6 | 12" | 99 | 1616 | 1871 |
| F-150/250 | 5.8L | C6 | 12" | 100 | 1569 | 1729 |
| F-250 (Calif.)/F-250/350, Bronco/E-150 | 5.8L | C6 | 12" | 100 | 1569 | 1729 |
| E-250/350 | 5.8L | C6 | 12" | 100 | 1569 | 1729 |
| E-250/350 | 7.5L | C6 | 12" | 91 | 1610 | 1891 |
| F-150, E-150/250 | 4.9L | AOD | 12" | 21A @ | 1933 | 2230 |
| F-150/250, E-150/250 | 5.0L | AOD | 12" | 24A @ | 1975 | 2285 |

@ For service replacement converter use 22A

Control Pressures — C-5

| Transmission Model | Range | Idle | | |
|-----------------------|-------|-------------|---------|--------------------------|
| | | 15" & Above | 10" | WOT Stall Thru Detent |
| PEA-CU | D | 57-73 | 93-103 | 150-164 |
| | 2,1 | 95-108 | 93-103 | 150-164 |
| | R | 61-121 | 155-172 | 250-274 |
| | P,N | 57-73 | 93-103 | 150-164 |
| PEA-CW | D | 64-84 | 99-109 | 157-171 |
| | 2,1 | 102-115 | 99-109 | 157-171 |
| | R | 73-133 | 166-184 | 261-285 |
| | P,N | 64-80 | 99-109 | 157-171 |

Powertrain — Automatic Transmission

SERVICE SPECIFICATIONS — CONT'D

Control Pressures — A4LD

| Transmission Type | Transmission Model | Range | Idle | | WOT Stall Thru Detent |
|-------------------|--|---------------------------|--------------------------|-------------------|-----------------------|
| | | | 15" & Above | 10" | |
| A4LD | 85GT-ABA/ACA/ AEA/AGA/ALA/ AMA/BAA/BCA | OD*, D, 2, 1 R P, N | 50-70 75-109 50-70 | 92-113 158-178 | 167-195 282-316 |
| A4LD | 85GT-ALA/AMA/BAA (Altitude) | OD, D, 2, 1 R P, N | 50-60 66-78 50-60 | 70-93 122-145 | 144-177 247-282 |

*Absolute barometric pressure (ABP) 29.0-30.0

@Absolute barometric pressure (ABP) 24.0-25.0

Control Pressures — C-6

| Transmission Type | Transmission Model | Idle 15" & Above | | 10" Vacuum | | WOT Stall | |
|-------------------|---------------------------------------|------------------|----------|--------------|----------|--------------|----------|
| | | Non Altitude | Altitude | Non Altitude | Altitude | Non Altitude | Altitude |
| C6 | PGD-EV-EY-FD DW-DL D, 2, 1 | 42-61# | 52-76 | 68-95# | 88-111 | 134-159# | 150-185 |
| | | 53-81@ | | 86-113@ | | 150-185@ | |
| | | R | 66-95# | 81-119 | 106-148# | 137-173 | 209-249# |
| | | | 81-126@ | | 135-177@ | | 245-275 |
| | | P, N | 42-61# | 52-76 | | | 235-285@ |
| C6 | PGD-AW-EG-FE-FF PJE-B-C D, 2, 1 | 42-61# | 42-63 | 68-95# | 75-110 | 134-159# | 155-180 |
| | | 53-81@ | | 86-113@ | | 150-185@ | |
| | | R | 66-95# | 66-99 | 106-148# | 117-157 | 209-249# |
| | | | 81-126@ | | 135-177@ | | 245-275 |
| | | P, N | 42-61# | 42-63 | | | 235-285@ |
| C6 | PGD-EK-FB-FC PJE-A D, 2, 1 | 42-63 | | 75-110 | | 155-180 | |
| | | R | 66-99 | 117-157 | | | 245-275 |
| | | P, N | 42-63 | | | | |
| C6 | PJD-BA-BB-BC D, 2, 1 | 67-91 | | 99-119 | | 155-180 | |
| | | R | 94-142 | 155-186 | | | 245-275 |
| | | P, N | 67-91 | | | | |

@At sea level Bar = 29.5

#At 5000 ft Bar = 24.5

Powertrain — Automatic Transmission

SERVICE SPECIFICATIONS — CONT'D

Control Pressures — AOD

| Transmission Model | Range | Idle | | WOT Stall | |
|-------------------------|-------------|-------------------|---------------|-------------------|---------------|
| | | Throttle Pressure | Line Pressure | Throttle Pressure | Line Pressure |
| All (Except 4.9L Appl.) | P,N,(D),D,1 | 0 | 55-65 | 79-91 | 180-215 |
| | R | 0 | 75-90 | 79-91 | 250-290 |
| 4.9L | P,N,(D),D,1 | 0 | 55-65 | 74-86 | 176-204 |
| | R | 0 | 75-90 | 74-86 | 241-279 |

Torque-Converter End-Play — All Vehicles

| Transmission Model | Converter End-Play | | | |
|---------------------------|--------------------------|------------|----------------|------------|
| | New or Rebuilt Converter | | Used Converter | |
| | MM | Inch | MM | Inch |
| A4LD,C5 | 0.584 Max. | 0.023 Max. | 1.27 Max. | 0.050 Max. |
| C6 | 0.533 Max. | 0.021 Max. | 1.01 Max. | 0.040 Max. |
| AOD (Automatic Overdrive) | 0.584 Max. | 0.023 Max. | 1.27 Max. | 0.050 Max. |

Transmission End Play — All Vehicles

| Transmission Model | MM | Inch |
|--------------------|---------------|----------------|
| A4LD,C5 | .025-0.635(1) | 0.001-0.025(1) |
| C6 | 0.203-1.067 | 0.008-0.042 |
| AOD | 0.203-1.117 | 0.008-0.044 |

(1) Less gasket.

Turbine and Stator

End Play — C-3 (Ranger Only)

| | |
|---------------------|-------------------------|
| New or rebuilt..... | .58mm / 0.023 inch Max. |
| Used..... | 1.27mm / 0.050 inch |

Powertrain — Automatic Transmission

SERVICE SPECIFICATIONS — CONT'D

Selective Thrust Washers (End Play Control) — A4LD

| Part Numbers | Thickness | | ID Number |
|---|-------------|-------------|-----------|
| | Inches | mm | |
| 74DT-7D014-EA No. 1 Thrust Washer Front Pump Support (Selective) | 9.109-0.111 | 2.725-2.775 | 5 |
| | 0.093-0.095 | 2.325-2.375 | 4 |
| | 0.077-0.079 | 1.925-1.975 | 3 |
| | 0.061-0.063 | 1.525-1.575 | 2 |
| | 0.049-0.051 | 1.225-1.275 | 1 |

Selective Thrust Washers C-5

(Selective Washers Must be Installed in Pairs)

| Thrust Washer No. 1 | | Thrust Washer No. 2 |
|---------------------|-------------|-----------------------|
| Color of Washer | Thickness | Washer Number |
| Red | 0.058-0.053 | 2 |
| Green | 0.074-0.070 | 3 |
| Neutral | 0.092-0.087 | 2 or 3 Plus Spacer(1) |

(1) This is a selective spacer used with washer 2 or 3. When used, install next to stator support.

Selective Thrust Washers (Front Pump Support) — C-6

| Identification Color | Thickness | |
|----------------------|-----------|-------------|
| | MM | Inch |
| Blue | 1.42-1.52 | 0.056-0.060 |
| Natural (White) | 1.85-1.95 | 0.073-0.077 |
| Red | 2.23-2.33 | 0.088-0.092 |

Selective Thrust Washer* — AOD

| Depth | Thickness | Color Code |
|-------------|-------------|------------|
| 1.483-1.500 | 0.050-0.054 | Green |
| 1.501-1.517 | 0.068-0.072 | Yellow |
| 1.518-1.534 | 0.085-0.089 | Natural |

| Depth | Thickness | Color Code |
|-------------|-----------|------------|
| 1.535-1.551 | .102-.106 | Red |
| 1.552-1.568 | .119-.123 | Blue |

*The thrust washer is located on the stator support which is attached to the back of the pump housing.

Powertrain — Automatic Transmission

SERVICE SPECIFICATIONS — CONT'D

Clutch Plate Usage, Clearance and Snap Rings — C-5

| Forward Clutch | | | Reverse and High Clutch | | |
|--|----------------------------|-----------------------------|---|----------------------------|-----------------------------|
| External Spline (Steel) | Internal Spline (Comp.) | Free Pack Clear (Inches) | External Spline (Steel) | Internal Spline (Comp.) | Free Pack Clear (Inches) |
| 4 | 5 | 0.025-0.050 | 4 | 4 | 0.025-0.050 |
| Selective Snap Ring Thickness (Fwd. or Rev. Clutch) | | | 0.050-0.054, 0.064-0.068, 0.078-0.082, 0.092- 0.096, 0.104-0.108 | | |

(1) Ranger

(2) F-150

Clutch Plate Usage and Clearance — C-6

| Transmission Model | Steel | Friction | Clearance | |
|--------------------|-------|----------|-------------|-------------|
| | | | MM | Inch |
| Forward Clutch | | | | |
| PGD, PJD | 4 (1) | 4 | 0.533-1.168 | 0.021-0.046 |
| High Clutch | | | | |
| PGD, PJD | 3 | 3 | 0.558-0.914 | 0.022-0.036 |
| Reverse Clutch | | | | |
| PJD | 5 (2) | 5 | — | — |
| PGD | 4 (2) | 4 | — | — |

(1) Plus a waved plate (7E457) next to inner pressure plate.

(2) Plus a waved plate next to the piston.

Clutch Snap Rings — C-6

| Part Number | Thickness | | Forward | High |
|----------------|-----------|-------------|---------|------|
| | MM | Inch | | |
| 377434 | 1.52-1.42 | 0.060-0.056 | X | X |
| 377126 | 1.75-1.62 | 0.069-0.064 | | X |
| 377127 | 1.98-1.87 | 0.078-0.074 | X | X |
| 377128 | 2.20-2.10 | 0.087-0.083 | | X |
| 377444 | 2.43-2.33 | 0.096-0.092 | X | X |
| 386841 | 2.89-2.79 | 0.114-0.110 | X | |
| 386842 | 3.35-3.25 | 0.132-0.128 | X | |

Clutch Plate Usage, Clearance and Snap Ring Thickness — AOD

Powertrain — Automatic Transmission

SERVICE SPECIFICATIONS — CONT'D

Forward Clutch

| Transmission Model | Steel | Friction | Clearance | Selective Snap Rings-Thickness |
|--------------------------------|-------|----------|-------------|--------------------------------|
| Models with 4.9L (300 CID) I-6 | 4* | 4 | 0.040-0.071 | 0.074-0.078 |
| Models with 5.0L | 5* | 5 | 0.050-0.089 | 0.102-0.108 |
| EFI | | | | 0.088-0.092 |
| | | | | 0.060-0.064 |

* Plus a waved plate (Installed next to piston)

Reverse Clutch

| Transmission Model | Steel | Friction | Clearance | Selective Snap Rings-Thickness |
|----------------------|-------|----------|-------------|--------------------------------|
| Models with 5.0L EFI | 3 | 4 | 0.040-0.075 | 0.074-0.078 |
| 4.9L (300 CID) I-6 | 2 | 3 | 0.030-0.056 | 0.102-0.106 |
| | | | | 0.088-0.092 |
| | | | | 0.060-0.064 |

Direct Clutch

| Transmission Model | Steel | Friction | Clearance | Selective Snap Rings-Thickness |
|--------------------|-------|----------|-------------|--------------------------------|
| All (4.9L, 5.0L) | 5 | 5 | 0.050-0.067 | 0.050-0.054 |
| | | | | 0.064-0.068 |
| | | | | 0.078-0.082 |
| | | | | 0.092-0.096 |

Intermediate Clutch

| Transmission Model | Steel | Friction | Gage Dim. | Selective Snap Rings-Thickness |
|--------------------|-------|----------|-------------|--------------------------------|
| All (4.9L, 5.0L) | 3# | 3 | 1.634-1.646 | 0.067-0.071 |
| | | | | 0.077-0.081 |
| | | | | 0.087-0.091 |
| | | | | 0.097-0.101 |

#Includes 1 selective plate.

Powertrain — Automatic Transmission

TORQUE SPECIFICATIONS

C-5

| Item | N·m | In-Lb |
|--|------------|--------|
| End Plates to Body | 2.82-4.51 | 25-40 |
| Separator Plate to Timing Valve Body | 2.82-4.51 | 25-40 |
| Lower Body and Detent to Upper Body | 4.51-6.77 | 40-60 |
| Oil Pan Screen to Timing Valve Body | 2.82-4.51 | 25-40 |
| Governor to Oil Collector | 9-14 | 80-120 |
| Pump Assembly to Case | 3.16-3.95 | 28-38 |
| Main Control to Case | 9.03-13.55 | 80-120 |
| Neutral Switch to Case | 6.21-8.47 | 55-75 |
| Upper Body to Lower Body (Long) | 9.03-12.55 | 80-120 |
| Upper Body to Lower Body (Short) | 4.51-6.77 | 40-60 |
| 3-2 Timing Valve Body to Upper Body | 4.51-6.77 | 40-60 |
| Detent Spring and Lower Body to Upper Body | 4.51-6.77 | 40-60 |
| 3-2 Timing Valve Body to Lower Body 5/16 | 4.51-6.77 | 40-60 |
| 3-2 Timing Valve Body to Lower Body 3/8 | 8.5 | 75 |

Powertrain — Automatic Transmission

TORQUE SPECIFICATIONS — CONT'D

C-5

| Item | N·m | Ft-Lb |
|--|-------|-------|
| Oil Cooler Line Connector to Transmission Case | 24-31 | 18-23 |
| OVERRUNNING CLUTCH RACE TO CASE | 18-27 | 13-20 |
| Oil Pan to Case | 17-21 | 12-16 |
| Stator Support to Pump | 17-27 | 12-20 |
| Converter Housing Cover to Converter Housing | 17-21 | 12-16 |
| Converter Housing to Case | 38-55 | 28-40 |
| Pump to Case | 38-55 | 28-40 |
| Engine Rear Cover Plate to Transmission | 17-21 | 12-16 |
| Rear Servo Cover to Case | 17-27 | 12-20 |
| Intermediate Servo Cover to Case | 22-29 | 16-22 |
| Oil Distributor Sleeve to Case | 17-27 | 12-20 |
| Extension Housing to Case | 38-54 | 28-40 |
| Engine to Transmission (3.8L) | 38-51 | 28-38 |
| Transmission to Engine (4.2L & 3.3L) | 55-67 | 40-50 |
| Outer Throttle Lever to Shaft | 17-21 | 12-16 |
| Inner Manual Lever to Shaft | 41-54 | 30-40 |
| Pump Pressure Plug to Case | 9-16 | 6-12 |
| Tube Nut — Cooler Line to Transmission Case Fitting | 17-24 | 12-18 |
| Intermediate Band and Reverse Band Adjusting Screw Locknut | 47-61 | 35-45 |
| Drain Plug to Converter Cover | 16-23 | 12-17 |
| Flywheel to Torque Converter | 27-46 | 20-43 |

C-6

| Item | (In-Lb) | N·m |
|--------------------------------------|---------|---------|
| End Plates to Body | 20-45 | 2.5-5 |
| End Plates to Body | 20-40 | 2.5-4.5 |
| Inner Downshift Lever Stop | 20-45 | 2.5-5 |
| Reinforcement Plate to Body | 20-45 | 2.5-5 |
| Screen and Lower to Upper Valve Body | 40-55 | 5-6.2 |
| Shift Valve Plate to Upper Body | 20-45 | 2.5-5 |
| Upper to Lower Body | 40-55 | 5-6.2 |

Powertrain — Automatic Transmission

TORQUE SPECIFICATIONS — CONT'D

C-6

| Item | (In-lb) | N·m |
|---|---------|-----------|
| Reinforcing Right Side Plate to Lower Body | 20-45 | 2.5-5 |
| Converter Housing Cover to Converter Housing (7.5L) | 30-60 | 3.5-6.5 |
| Control Assy. to Case | 95-125 | 11-14 |
| Governor Body to Collector Body | 90-120 | 10.5-13.5 |
| Detent Spring to Case | 80-120 | 9.5-13.5 |
| Rear Engine Support to Frame | 40-60 | 5-6.5 |
| Neutral Switch to Case | 55-75 | 6.5-8 |
| Item | (Ft-lb) | N·m |
| Converter to Flywheel | 20-34 | 28-45 |
| Front Pump to Transmission Case | 16-30 | 22-40 |
| OVERRUNNING CLUTCH RACE TO CASE | 18-25 | 25-33 |
| Oil Pan to Case | 8-12 | 11-16 |
| Stator Support to Pump | 12-16 | 17-21 |
| Converter Cover to Converter Housing | 12-16 | 17-21 |
| Guide Plate to Case | 12-16 | 17-21 |
| Intermediate Servo Cover to Case | 14-20 | 19-27 |
| Diaphragm Assy. to Case | 12-16 | 17-21 |
| Distributor Sleeve to Case | 12-16 | 17-21 |
| Extension Assy. to Transmission Case | 25-35 | 34-47 |
| Plug — Case Front Pump or Line Pressure | 6-12 | 8.5-16 |
| Pressure Gauge Tap | 6-12 | 8.5-16 |
| Band Adj. Screw Locknut to Case | 35-45 | 48-61 |
| Converter Drain Plug | 8-28 | 11-37 |
| Manual Valve Inner Lever to Shaft | 30-40 | 41-54 |
| Downshift Lever to Shaft | 12-16 | 17-21 |
| Filler Tube to Engine (Econoline-5.0L/5.8L/7.5L) | 40-50 | 54-67 |
| Filler Tube to Engine (Econoline 4.9L) | 33-42 | 44-56 |
| Filler Tube to Engine (Econoline 6.9L) | 24-35 | 32-47 |
| Transmission to Engine (Diesel Only) | 50-65 | 67-87 |
| Transmission to Engine (All Gasoline Engines) | 40-50 | 55-67 |
| Rear Engine Support to Transmission | 60-80 | 80-107 |
| Plug Case — Throttle Pressure | 6-12 | 8.5-16 |
| 5/16" Fitting — Cooler Line Connector to Case — Front and Rear (Case Fitting) | 18-23 | 25-32 |
| 5/16" Tube Nut — Cooler Line to Transmission Case Fitting | 12-18 | 17-24 |

TORQUE SPECIFICATIONS — CONT'D

1985 A4LD

| Description | N·m | Ft-Lbs |
|---|-----------|---------|
| Transmission to Engine | 38.0-51.5 | 28-38 |
| Converter Housing Lower Cover to Converter Housing | 16.3-21.7 | 12-16 |
| Converter Housing and Pump to Case | 36.6-52.9 | 27-39 |
| Oil Pump to Converter Housing | 9.5-13.6 | 7-10 |
| Center Support (O/D) to Case | 8.0-11.0 | *71-97 |
| Extension Housing to Case | 36.6-52.9 | 27-39 |
| Oil Pan to Case | 6.8-13.6 | 5-10 |
| Main Control to Case | 8.0-11.0 | *71-97 |
| Separator Plate to Valve Body | 9.5-12.1 | *84-107 |
| Detent Spring to Valve Body | 9.0-12.1 | *80-107 |
| Neutral Start Switch to Case | 9.5-13.6 | *84-120 |
| Reverse Servo to Case | 9.0-13.0 | *80-115 |
| Vacuum Diaphragm Retainer Clip to Case | 9.0-12.0 | *80-106 |
| Governor Assembly to Oil Collector Body | 9.5-13.6 | *84-120 |
| Outer Downshift Lever to Inner Lever Shaft Nut | 9.5-15.0 | 7-11 |
| Manual Lever Nut | 40.7-54.2 | 30-40 |
| Overdrive Band Adjusting Screw Locknut to Case | 47.5-61.0 | 35-45 |
| Intermediate Band Adjusting Screw Locknut to Case | 47.5-61.0 | 35-45 |
| Converter to Flywheel Attaching Nut | 27.1-46.1 | 20-34 |
| Cooler Line to Case Connector | 24.4-31.2 | 18-23 |
| Push Connect Cooler Line Fitting to Case | 24.4-31.2 | 18-23 |
| Cooler Line to Connector — Tube Nut (5/16 Inch) (Torque Tube Nuts to Spec. While Holding the Transmission Fitting.) | 16.3-24.4 | 12-18 |
| Pressure Plug to Case | 9.5-14.9 | 7-11 |

*In-Lbs

Powertrain — Automatic Transmission

TORQUE SPECIFICATIONS — CONT'D

AOD

| Application | Torque |
|--|---------------------------|
| Stator Support to Pump Body | 22-34 N·m (16-25 ft-lb) |
| Front Pump to Case | 22-27 N·m (16-20 ft-lb) |
| Reinforcing Plate to Valve Body | 9-11 N·m (80-100 in-lb) |
| Separator Plate to Valve Body | 9-11 N·m (80-100 in-lb) |
| Valve Body to Case | 9-11 N·m (80-100 in-lb) |
| Filter to Valve Body | 9-11 N·m (80-100 in-lb) |
| Oil Pan to Case | 16-22 N·m (12-16 ft-lb) |
| Extension to Case | 22-27 N·m (16-20 ft-lb) |
| Governor Body to Counterweight | 6-7 N·m (50-60 in-lb) |
| Governor Body Cover Plate to Governor Body | 2.3-3.4 N·m (20-30 in-lb) |
| Inner Manual Lever to Shaft | 41-54 N·m (30-40 ft-lb) |
| Outer Throttle Lever to Shaft | 16-22 N·m (12-16 ft-lb) |
| Cooler Line to Case | 24-31 N·m (18-23 ft-lb) |
| Converter Plug to Converter | 11-38 N·m (8-28 ft-lb) |
| Neutral Start Switch to Case | 10-14 N·m (7-10 ft-lb) |
| Pressure Plug to Case | 8-16 N·m (6-12 ft-lb) |
| Transmission to Engine | 55-68 N·m (40-50 ft-lb) |

Powertrain — Gasoline Engines — Identification

ENGINE IDENTIFICATION LABEL — RANGER 2.0L/2.3L

The engine identification label is located on the timing belt cover.

| Code | | | | | |
|-------|-----|-----|--------|--------|--|
| -Year | 50S | 49S | Canada | Calif. | |
| 0 | 0 | A | L | S | |
| 1 | 1 | B | M | T | |
| 2 | 2 | C | N | U | |
| 3 | 3 | D | P | W | |
| 4 | 4 | E | R | X | |
| 5 | 5 | F | L | S | |
| 6 | 6 | G | M | T | |
| 7 | 7 | H | N | U | |
| 8 | 8 | J | P | W | |
| 9 | 9 | K | R | X | |

- A — Air Conditioning
- B — Non-Air Conditioning
- C — Industrial & Marine
- D — Export
- E — Over 8500 lbs/Non Therm.
- F — Thermactor Without A/C
- G — A/C or Non-A/C Engines
- H — Power Steering
- J — Thermactor With A/C
- K — Thermactor A/C or Non-A/C
- L — Over 8500 Lbs/Therm.

| Base |
|-----------------------|
| (Displacement) |
| (Vehicle Application) |
| (Inertia Weight) |
| (Axle Ratio) |
| (Transmission) |



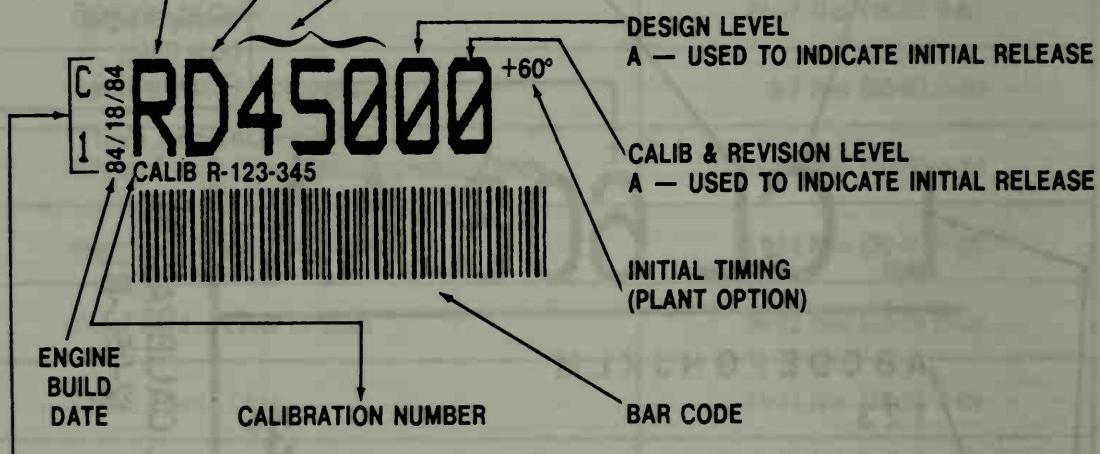
Powertrain — Gasoline Engines — Identification

ENGINE IDENTIFICATION LABEL — E-F-150-350, BRONCO

| YEAR | 50S | 49S | CANADA | CALIF |
|------|-----|-----|--------|-------|
| 0 | 0 | A | L | S |
| 1 | 1 | B | M | T |
| 2 | 2 | C | N | U |
| 3 | 3 | D | P | W |
| 4 | 4 | E | R | X |
| 5 | 5 | F | L | S |
| 6 | 6 | G | M | T |
| 7 | 7 | H | N | U |
| 8 | 8 | J | P | W |
| 9 | 9 | K | R | X |

- A — AIR/CONDITIONING
- B — NON AIR/CONDITIONING
- C — INDUSTRIAL & MARINE
- D — EXPORT
- E — OVER 6000 LBS./NON THERM
- F — THERMACTOR WITHOUT A/C
- G — A/C OR NON A/C ENGINES
- H — POWER STEERING
- J — THERMACTOR WITH A/C
- K — THERMACTOR A/C OR NON A/C
- L — OVER 6000 LBS./THERM

BASE
DISPLACEMENT
VEHICLE APPLICATION
INERTIA WEIGHT
AXLE RATIO
TRANSMISSION

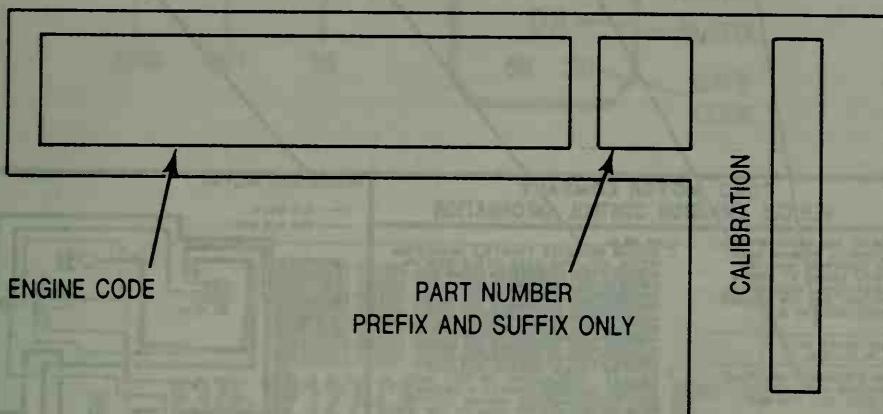


DENOTES PLANT SOURCED TO PRODUCE ENGINES

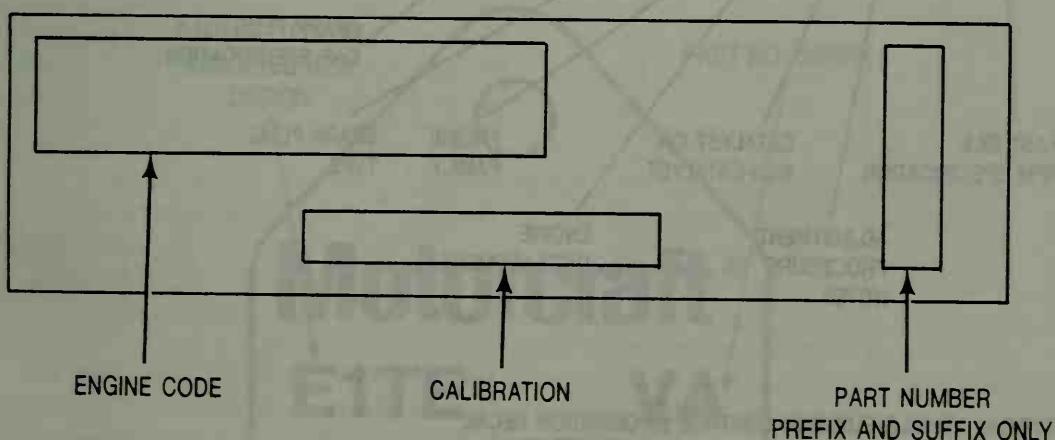
| |
|------------------------------|
| D — DEARBORN ENGINE PLANT |
| C1 — CLEVELAND ENGINE PLT. 1 |
| C2 — CLEVELAND ENGINE PLT. 2 |
| W1 — WINDSOR ENGINE PLT. 1 |
| W2 — WINDSOR ENGINE PLT. 2 |

ALTERNATE ENGINE IDENTIFICATION LABELS

TYPE I

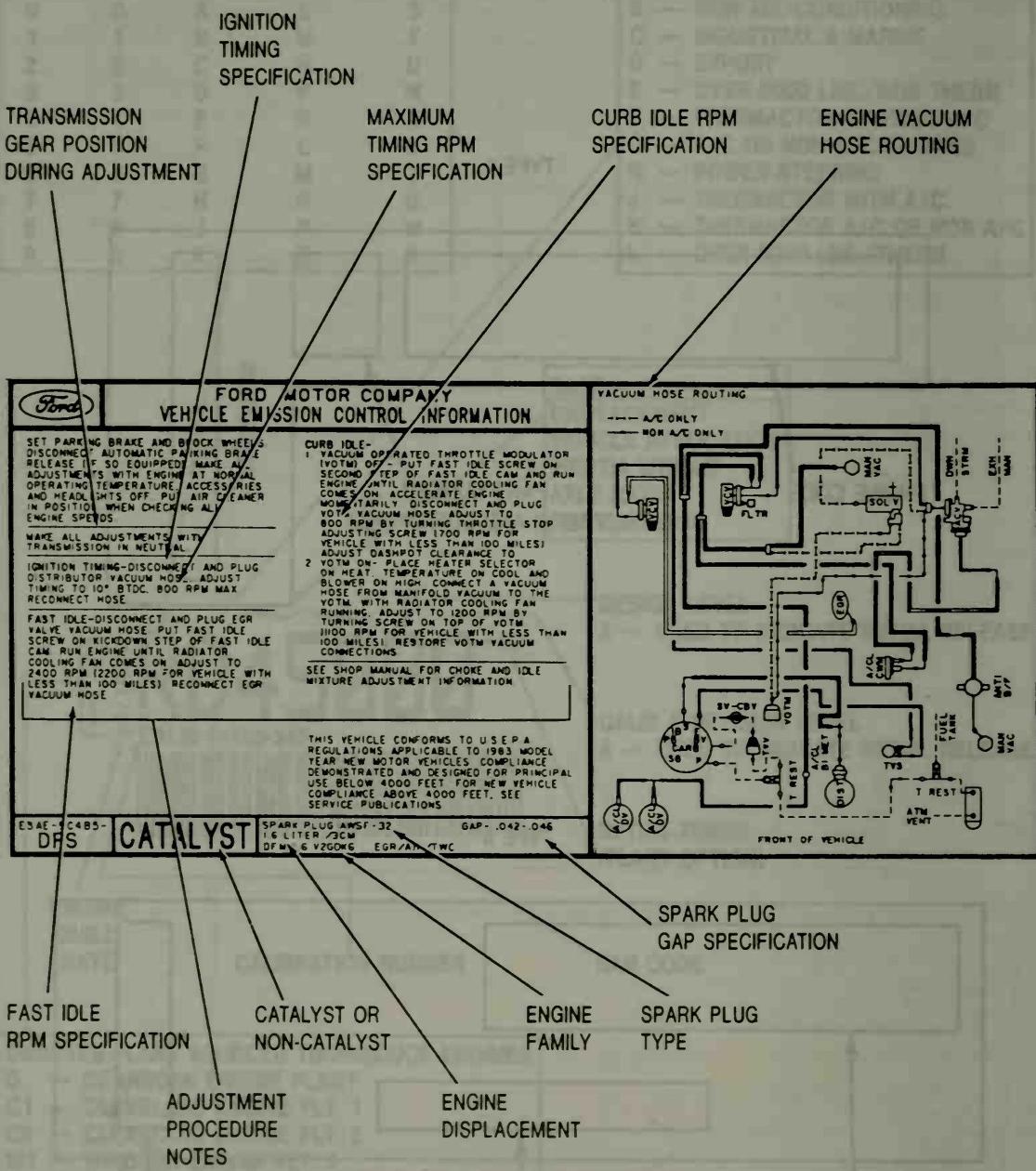


TYPE II



Powertrain — Gasoline Engines — Identification

VEHICLE EMISSION CONTROL INFORMATION (VECI) DECAL — ALL VEHICLES



TYPICAL VEHICLE EMISSION CONTROL INFORMATION DECAL

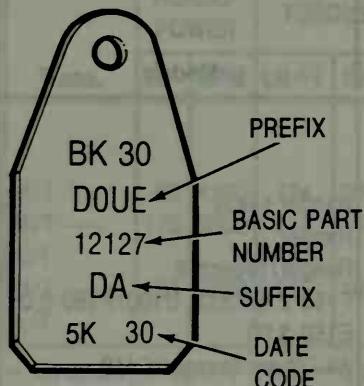
Powertrain — Gasoline Engines — Identification

DISTRIBUTOR IDENTIFICATION TAG — ALL EXCEPT 3.8L ENGINE

DATE CODE
READ:

- YEAR (0-9)
- MONTH (A-M, I NOT USED)
- DAY (1-31)

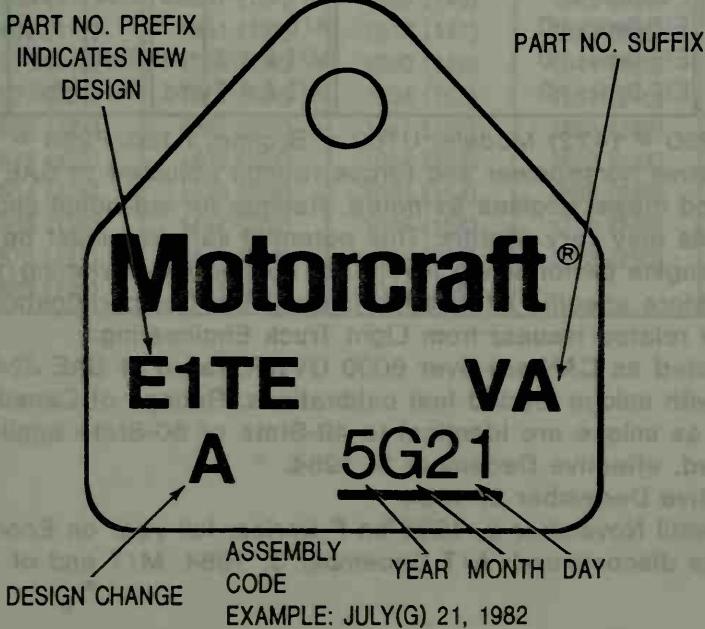
2 K 30
↓ ↓ ↓
1985 OCT 30



E3ZE-12127-CA

POE

TYPICAL CARBURETOR IDENTIFICATION TAG — ALL VEHICLES



Powertrain — Gasoline Engines

AVAILABILITY/POWER RATINGS — ALL ENGINES

| Engine | Sales Region | Models | Trans. | HORSE-POWER | | TORQUE | | Nominal Compression Ratio |
|------------------|--------------|-------------------------------|-----------|-------------|------|--------|------|---------------------------|
| | | | | HP | RPM | LB-FT | RPM | |
| Gasoline Engines | a/ | | | | | | | |
| 2.0 | 49S | Ranger (4X2) | M/T | 74 | 4000 | 108 | 2600 | 9.0 |
| 2.3 | 50S | Ranger | M/T & A/T | 90 | 4000 | 130 | 1800 | 9.5 |
| 2.8L | 50S | Ranger/Bronco II | M/T & A/T | 115 | 4600 | 150 | 2600 | 8.7 |
| 4.9L | 49S | F150 2.47/3.08 U160/F160 3.08 | M/T ----- | 120 | 3000 | 250 | 2000 | 8.5 |
| | 49S | E150 3.00 | M/T | | | | | 8.5 |
| | 50S | All Others (except CAN) | M/T & A/T | 125 | 3200 | 245 | 1800 | 8.5 |
| | CAN b/ | E/F-Series | M/T & A/T | 116 | 3200 | 230 | 1600 | 7.9 |
| | 49S c/ | E/F-Series HD | M/T & A/T | 125 | 3200 | 235 | 1200 | 7.9 |
| | 49S d/ | E/F-Series HD | M/T & A/T | 125 | 3400 | 240 | 1200 | 7.9 |
| 5.0L-2V | 49S e/ | E150/E250 | A/T | 150 | 3600 | 250 | 2600 | 8.4 |
| | 49S e/ | F150/250 | A/T | 145 | 3400 | 250 | 2200 | 8.4 |
| | CAL e/ | F150/250 | A/T ----- | 145 | 3400 | 255 | 1600 | 8.4 |
| | CAL e/ | E150/250 | A/T | | | | | 8.4 |
| 5.0L-EFI | 50S | F150/F250/U160/F160/F260 | M/T & A/T | 190 | 3800 | 285 | 2400 | 9.0 |
| 5.8L-2V | 49S e/ | F250/F160/F260 | M/T ----- | 150 | 3200 | 280 | 1800 | 8.3 |
| | CAL e/ | F150/F250/U160/F160/F260 | A/T | | | | | 8.3 |
| | CAL e/ | E150/E250 | A/T | | | | | 8.3 |
| | 49S f/ | F-Series HD | M/T & A/T | 165 | 3200 | 295 | 2200 | 8.3 |
| | 49S f/ | E-Series HD | A/T | 160 | 3200 | 280 | 2000 | 8.3 |
| 5.8L-4V | 49S | F150/F250/U160/F160/F260 | A/T ----- | 210 | 4000 | 305 | 2800 | 8.3 |
| | 49S | E150/250 | A/T | | | | | 8.3 |
| | 49S d/ | E/F-Series HD | A/T | tbd | tbd | tbd | tbd | 8.3 |
| 7.5L | 49S d/ | F-Series HD | M/T ----- | 225 | 4000 | 365 | 2800 | 8.0 |
| | | E/F-Series HD | A/T | | | | | 8.0 |
| | CAL c/ | F-Series HD | M/T ----- | 220 | 4000 | 360 | 2600 | 8.0 |
| | | E/F-Series HD | A/T | | | | | 8.0 |
| | 49S d/ | E/F-Series HD | M/T & A/T | tbd | tbd | tbd | tbd | 8.0 |
| | CAL d/ | E/F-Series HD | M/T & A/T | tbd | tbd | tbd | tbd | 8.0 |

Note: F150/F250 = (4X2) Models; U160 = Bronco; F160/F260 = (4X4) Models

- a/ Representative horsepower and torque ratings adjusted to SAE J1349 net for gasoline and diesel engines as noted. Ratings for individual engine model combinations may vary slightly. This potential variation must be acknowledged whenever engine performance levels are utilized for marketing/advertising purposes. More specific information is available (for certification and compliance related issues) from Light Truck Engineering.
- b/ Vehicles listed as CAN are over 6000 GVWR, rated at SAE J245, and are equipped with unique leaded fuel calibrations. Ratings of Canadian vehicles not shown as unique are identical to 49-State or 50-State applications.
- c/ Discontinued, effective December 3, 1984.
- d/ New, effective December 3, 1984.
- e/ Carryover until November 5, 1985 on F-Series; full year on Econoline.
- f/ Applications discontinued: A/T December 3, 1984, M/T end of 1984 CY.

Powertrain — Gasoline Engines

AVAILABILITY/POWER RATINGS — ALL ENGINES — Cont'd

| Engine | Sales Region | Models | Trans. | HORSE-POWER | | TORQUE | | Nominal Compression Ratio |
|-----------------------|-----------------------|--|---|-------------|------|--------|------|---------------------------|
| | | | | HP | RPM | LB-FT | RPM | |
| Diesel Engines | a/ 2.3 T/C 6.9L | Ranger/Bronco II F-Series HD E/F-Series HD F-Series HD E/F-Series HD | M/T M/T ----- A/T M/T ----- A/T | 86 | 4200 | 134 | 2000 | 21.0 |
| | | | | 170 | 3300 | 315 | 1400 | 21.5 |
| | | | | | | | | 21.5 |
| | | | | | | | | 21.5 |
| | | | | | | | | 21.5 |

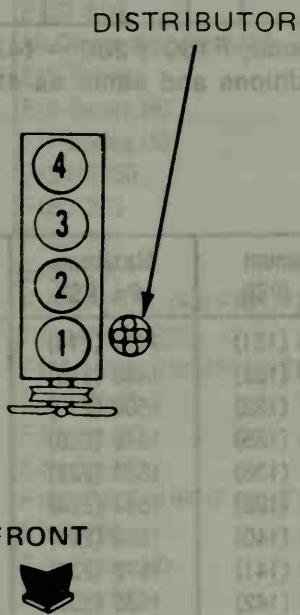
Note: F150/F250 = (4X2) Models; U160 = Bronco; F160/F260 = (4X4) Models

g/ Altitude engine ratings are at sea level conditions and same as 49/50S unless noted otherwise.

Compression Test Percentages

| Maximum kPa (PSI) | Minimum kPa (PSI) | Maximum kPa (PSI) | Minimum kPa (PSI) | Maximum kPa (PSI) | Minimum kPa (PSI) |
|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|
| 923 (134) | 697 (101) | 1199 (174) | 903 (131) | 1475 (214) | 1103 (160) |
| 937 (136) | 703 (102) | 1213 (176) | 910 (132) | 1489 (216) | 1116 (162) |
| 951 (138) | 717 (104) | 1227 (178) | 917 (133) | 1503 (218) | 1123 (163) |
| 965 (140) | 723 (105) | 1241 (180) | 930 (135) | 1516 (220) | 1137 (165) |
| 979 (142) | 737 (107) | 1254 (182) | 937 (136) | 1530 (222) | 1144 (166) |
| 992 (144) | 744 (108) | 1268 (184) | 951 (138) | 1544 (224) | 1158 (168) |
| 1006 (146) | 758 (110) | 1282 (186) | 965 (140) | 1558 (226) | 1165 (169) |
| 1020 (148) | 765 (111) | 1296 (188) | 972 (141) | 1572 (228) | 1179 (171) |
| 1034 (150) | 779 (113) | 1310 (190) | 979 (142) | 1585 (230) | 1185 (172) |
| 1048 (152) | 786 (114) | 1323 (192) | 992 (144) | 1599 (232) | 1199 (174) |
| 1061 (154) | 792 (115) | 1337 (194) | 999 (145) | 1613 (234) | 1206 (175) |
| 1075 (156) | 806 (117) | 1351 (196) | 1013 (147) | 1627 (236) | 1220 (177) |
| 1089 (158) | 813 (118) | 1365 (198) | 1020 (148) | 1641 (238) | 1227 (178) |
| 1103 (160) | 827 (120) | 1379 (200) | 1034 (150) | 1654 (240) | 1241 (180) |
| 1116 (162) | 834 (121) | 1392 (202) | 1041 (151) | 1668 (242) | 1247 (181) |
| 1130 (164) | 848 (123) | 1406 (204) | 1054 (153) | 1682 (244) | 1261 (183) |
| 1144 (166) | 854 (124) | 1420 (206) | 1061 (154) | 1696 (246) | 1268 (184) |
| 1158 (168) | 868 (126) | 1434 (208) | 1075 (156) | 1709 (248) | 1282 (186) |
| 1172 (170) | 875 (127) | 1447 (210) | 1082 (157) | 1723 (250) | 1289 (187) |
| 1185 (172) | 889 (129) | 1461 (212) | 1089 (158) | | |

FIRING ORDER AND DISTRIBUTOR LOCATION

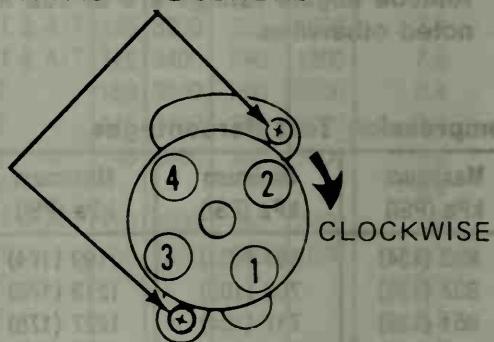


**CYLINDER NUMBERING AND
DISTRIBUTOR LOCATION**

2.0L & 2.3L 4-CYLINDER

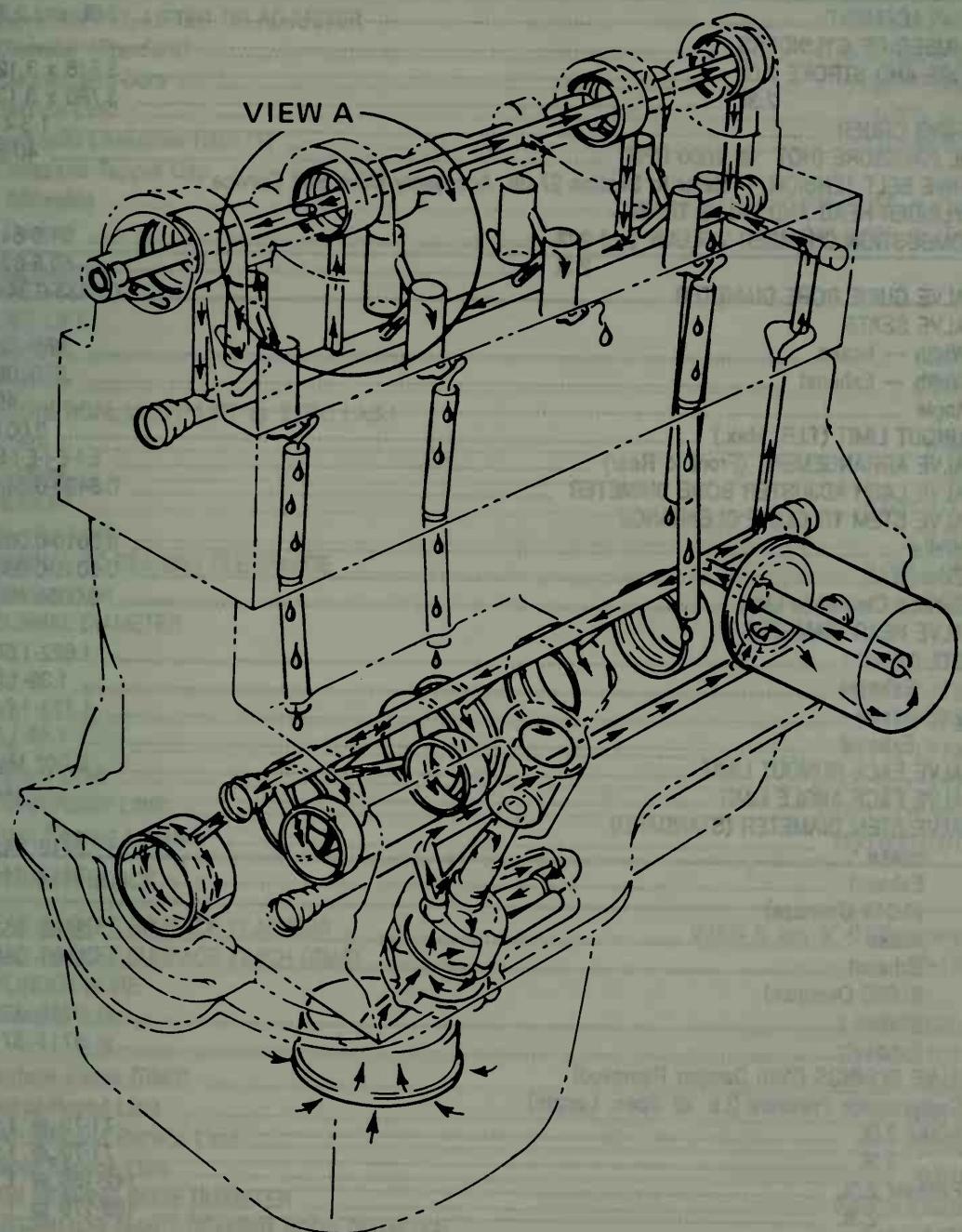
FIRING ORDER AND POSITION

**POSITION OF CAP
ATTACHING SCREWS**



FIRING ORDER—1-3-4-2

OIL FLOW



SERVICE SPECIFICATIONS

GENERAL SPECIFICATIONS

| | |
|---|--------------------------------------|
| DISPLACEMENT..... | 2.0L and 2.3L |
| NUMBER OF CYLINDERS | 4 |
| BORE AND STROKE 2.0L | 3.518 x 3.126 |
| 2.3L | 3.780 x 3.126 |
| FIRING ORDER | 1-3-4-2 |
| OIL PRESSURE (HOT @ 2000 RPM) | 40-60 |
| DRIVE BELT TENSION — Refer to Section 27-06. Accessory Drive Belt Service | |
| CYLINDER HEAD AND VALVE TRAIN | |
| COMBUSTION CHAMBER VOLUME (cc) 2.0L | 51.0-54.0 |
| 2.3L | 59.8-62.8 |
| VALVE GUIDE BORE DIAMETER | 0.3433-0.3443 |
| VALVE SEATS | |
| Width — Intake | .060-.080 |
| Width — Exhaust | .070-.090 |
| Angle | 45° |
| RUNOUT LIMIT (T.I.R. Max.) | 0.0016 |
| VALVE ARRANGEMENT (Front to Rear) | E-I-E-I-E-I-E-I |
| VALVE LASH ADJUSTER BORE DIAMETER | 0.8430-0.9449 |
| VALVE STEM TO GUIDE CLEARANCE | |
| Intake | 0.0010-0.0027 |
| Exhaust | 0.0015-0.0032 |
| Service Clearance Limit | 0.0055 Max. |
| VALVE HEAD DIAMETER | |
| 2.0L Intake | 1.622-1.598 |
| Exhaust | 1.39-1.37 |
| 2.3L Intake | 1.723-1.747 |
| Exhaust | 1.49-1.51 |
| VALVE FACE RUNOUT LIMIT | 0.002 Max. |
| VALVE FACE ANGLE LIMIT | 44° |
| VALVE STEM DIAMETER (STANDARD) | |
| Intake | .3416-.3423 |
| Exhaust | .3411-.3418 |
| (0.015 Oversize) | |
| Intake | .3566-.3573 |
| Exhaust | .3561-.3568 |
| (0.030 Oversize) | |
| Intake | .3716-.3723 |
| Exhaust | .3711-.3718 |
| VALVE SPRINGS (With Damper Removed) | |
| Compression Pressure (Lb. @ Spec. Length) | |
| Intake 2.0L | 71-79 @ 1.52 |
| 2.3L | 71-79 @ 1.56 |
| Exhaust 2.0L | 142-156 @ 1.12 |
| 2.3L | 159-175 @ 1.16 |
| Free Length (Approximate) 2.0L | 1.922 |
| 2.3L | 1.89 |
| Assembled Height 2.0L | 1.49-1.55 |
| 2.3L | 1.17/32 — 1.19/32 |
| Service Limit | 10% Pressure Loss @ Specified Length |
| Out of Square Service Limit | 5/64 (0.078) |
| ROCKER ARM (Cam Follower) | |
| Ratio | 1.64:1 |

SERVICE SPECIFICATIONS — CONT'D

GENERAL SPECIFICATIONS CONT'D

| | |
|-----------------------------------|-------------------|
| VALVE TAPPET, LIFTER OR ADJUSTER | |
| Diameter (Standard) | 0.8422-0.8427 |
| Clearance-to-Bore | 0.0007-0.0027 |
| Service Limit | 0.005 Max. |
| Hydraulic Leakdown Rate (1) | 2-8 Seconds |
| Collapsed Tappet Gap | |
| Allowable | 0.035-0.055 @ Cam |
| Desired | 0.040-0.050 @ Cam |

CAMSHAFT

LOBE LIFT

| | |
|---------------|--------|
| Intake | 0.2381 |
| Exhaust | 0.2381 |

THEORETICAL VALVE LIFT @ ZERO LASH

| | |
|---------------|-------|
| Intake | 0.390 |
| Exhaust | 0.390 |

| | |
|---------------------|-------------|
| ENDPLAY | 0.001-0.007 |
| Service Limit | 0.009 |

| | |
|------------------------------------|-------------|
| JOURNAL-TO-BEARING CLEARANCE | 0.001-0.003 |
| Service Limit | 0.006 |

JOURNAL DIAMETER

| | |
|------------------------------|-------------------|
| #1 | 1.7713-1.7720 |
| #2 | 1.7713-1.7720 |
| #3 | 1.7713-1.7720 |
| #4 | 1.7713-1.7720 |
| Runout Limit | 0.005 Max. T.I.R. |
| Out-of-Round Limit | 0.005 T.I.R. Max |
| Front Bearing Location | (2)0.000-0.010 |

CYLINDER BLOCK

| | |
|--|-------------------------------|
| HEAD GASKET SURFACE FLATNESS | 0.003 in any 6"-0.006 overall |
| HEAD GASKET SURFACE FINISH (RMS) | 60-150 |

CYLINDER BORE

| | |
|---------------------|---------------|
| Diameter 2.0L | 3.5165-3.5201 |
| 2.3L | 3.7795-3.7831 |

| | |
|----------------------------|--------|
| Surface Finish (RMS) | 18-38 |
| Out-of-Round Limit | 0.0015 |

| | |
|----------------------------------|-------|
| Out-of-Round Service Limit | 0.005 |
| Taper Service Limit | 0.010 |

| | |
|---|---------------|
| MAIN BEARING BORE DIAMETER | 2.5902-2.5910 |
| DISTRIBUTOR SHAFT BEARING BORE DIAMETER | .5155-.5170 |

(1) Time required for plunger to leak down 3.18mm (1/8") of travel with 22.68 kg (50 lb.) load leakdown fluid in lash adjuster.

(2) Distance in inches that front bearing is installed below front face of bearing tower.

SERVICE SPECIFICATIONS — CONT'D

CRANKSHAFT, FLYWHEEL AND CONNECTING ROD

| | |
|--|-------------------------------------|
| MAIN BEARING JOURNAL DIAMETER | 2.399-2.3982 |
| Out-of-Round Limit | 0.0006 Max. |
| Taper Limit | 0.0006 Per Inch |
| Journal Runout Limit | 0.002 Max. |
| Surface Finish (RMS) | 12 Max. |
| Runout Service Limit | 0.005 |
| THRUST BEARING JOURNAL | |
| Length | 1.201-1.199 |
| CONNECTING ROD JOURNAL | |
| Diameter | 2.0462-2.0472 |
| Out-of-Round Limit | 0.0006 Max. |
| Taper Limit | 0.0006 Per Inch Max. |
| Surface Finish (RMS) | 12 Max. |
| MAIN BEARING THRUST FACE | |
| Surface Finish (RMS) | 35 Front/25 Rear (Max.) |
| Runout Limit | 0.001 Max. |
| FLYWHEEL CLUTCH FACE | |
| Runout Limit | 0.005 |
| FLYWHEEL RING GEAR LATERAL RUNOUT (T.I.R.) | |
| Standard Transmission | 0.025 |
| Automatic Transmission | 0.060 |
| CRANKSHAFT FREE END PLAY LIMIT | 0.004-0.008 |
| Service Limit | 0.012 |
| AUXILIARY SHAFT END PLAY | 0.001-0.007 |
| CONNECTING ROD BEARINGS | |
| Clearance Crankshaft — Desired | 0.0008-0.0015 |
| — Allowable | 0.0008-0.0026 |
| Bearing Wall Thickness (Standard) (3) | 0.0619-0.0624 |
| MAIN BEARINGS | |
| Clearance to Crankshaft — Desired | 0.0008-0.0015 |
| — Allowable | 0.0008-0.0026 |
| Bearing Wall Thickness (Standard) (3) | 0.0956-0.0951 |
| AUXILIARY SHAFT BEARINGS | |
| Clearance to Shaft | 0.0006-0.0026 |
| CONNECTING ROD | |
| Piston Pin Bore Diameter 2.0L | 23.104-23.145mm (.9096-.9112 in.) |
| 2.3L | 23.172-23.180mm (.9123-.9126 in.) |
| Crankshaft Bearing Bore Diameter | 55.170-55.190mm (2.1720-2.1728 in.) |
| Out-of-Round Limit | 0.0004 |
| Taper Limit | 0.0004 |
| Length (Center-to-Center) | 5.2031-5.2063 |
| Alignment (Bore-to-Bore Max. Difference) (4) | |
| Twist | 0.024 |
| Bend | 0.012 |
| Side Clearance (Assembled to Crank) | |
| Standard..... | 0.0035-0.0105 |
| Service Limit | 0.014 |

(3) 0.002 undersize = Add 0.001 to Standard Thickness.

(4) Pin bore and crank bearing bore must be parallel and in the same vertical plane, within the specified total difference when measured at the ends of an 8" bar — 4" on each side of rod centerline.

SERVICE SPECIFICATIONS — CONT'D

PISTONS AND RINGS

PISTON

Diameter (5)

| | |
|---------------------|-------------------------------------|
| Coded Red 2.0L | 89.281-89.296mm (3.5150-3.5156 IN) |
| 2.3L | 95.961-95.9776mm (3.7780-3.7786 IN) |
| Coded Blue 2.0L | 89.312-89.327mm (3.5162-3.5168 IN) |
| 2.3L | 95.992-96.007mm (3.7792-3.7798 IN) |
| 0.003 Oversize 2.0L | 89.342-89.357mm (3.5174-3.5180 IN) |
| 2.3L | 96.022-96.037mm (3.7804-3.7810 IN) |

Piston-to-Bore-Clearance (Select Fit) 0.036-0.056mm (0.0014-0.0022 IN)

Pin Bore Diameter 23.1725-23.1800mm (0.9123-0.9126 IN)

Ring Groove Width

| | |
|----------------------|--------------------------------|
| Compression (Top) | 2.032-2.057mm (0.080-0.081 IN) |
| Compression (Bottom) | 2.032-2.057mm (0.080-0.081 IN) |
| Oil 2.0L | 4.801-4.826mm (0.189-0.190 IN) |
| 2.3L | 4.775-4.801mm (0.188-0.189 IN) |

PISTON PIN

Length 76.5-77.2mm (3.01-3.04 IN)

Diameter

| | |
|----------------|----------------------------------|
| Standard | 23.162-23.175mm (.9119-.9124 IN) |
| 0.001 Oversize | 23.190-23.198mm (.9130-.9133 IN) |
| 0.002 Oversize | 23.216-23.223mm (.9140-.9143 IN) |

Piston-to-Pin Clearance 0.005-0.010mm (0.0002-0.0004 IN)

Pin-to-Rod Clearance Interference Fit

PISTON RINGS

Ring Width

| | |
|----------------------|----------------------------------|
| Compression (Top) | 1.956-1.981mm (0.0770-0.0780 IN) |
| Compression (Bottom) | 1.956-1.981mm (0.0770-0.0780 IN) |

Side Clearance

| | |
|----------------------|----------------------------------|
| Compression (Top) | 0.051-0.101mm (0.0020-0.0040 IN) |
| Compression (Bottom) | 0.051-0.101mm (0.0020-0.0040 IN) |

Oil Ring Snug Fit

Service Limit 0.15mm (0.006 IN) Max.

Ring Gap

| | |
|----------------------|------------------------------|
| Compression (Top) | 0.25-0.50mm (0.010-0.020 IN) |
| Compression (Bottom) | 0.25-0.50mm (0.010-0.020 IN) |
| Oil (Steel Rail) | 0.38-1.40mm (0.015-0.055 IN) |

(5) Measured at the piston pin bore, centerline — 90° to the pin.

SERVICE SPECIFICATIONS — CONT'D

| LUBRICATION SYSTEM | |
|---|----------------------|
| OIL PUMP | |
| Relief Valve Spring Tension (Lbs. Spec. Length) | 15.2-17.2 @ 1.20" |
| Drive Shaft-to-Housing Bearing Clearance | 0.0015-0.0030 |
| Relief Valve-to-Bore Clearance | 0.0015-0.0030 |
| Rotor Assembly End Clearance (Assembled) | 0.004 Max. |
| Outer Race-to-Housing Clearance | 0.001-0.013 |
| Oil Capacity (Quarts U.S.) — 2.0L | 4 (6) |
| 2.3L | 5 (6) |
| FUEL PUMP | |
| Static Pressure (PSI) (7) | 5.0-7.0 |
| Minimum Volume Flow (8)(9) | 1 Pint in 25 Seconds |
| Eccentric Total Lift (Inches) | 0.304-0.326 |

NOTES:

- (1) Time required for plunger to leak down 3.18mm (1/8") of travel with 22.68 kg (50 lb.) load leakdown fluid in lash adjuster.
- (2) Distance in inches that front bearing is installed below front face of bearing tower.
- (3) 0.002 undersize = Add 0.001 to Standard Thickness.
- (4) Pin bore and crank bearing bore must be parallel and in the same vertical plane, within the specified total difference when measured at the ends of an 8" bar — 4" on each side of rod centerline.
- (5) Measured at the piston pin bore, centerline — 90° to the pin.
- (6) Add one quart with filter change.
- (7) On engine, temperature normal, curb idle, in neutral, brakes set.
- (8) Pump to tank return line pinched off, new fuel filter in line.
- (9) Smallest Orifice = No less than 0.220" .D.

TORQUE SPECIFICATIONS

| Item | Torque | | |
|--|--------|---------|---------|
| | Size | N·m | Ft-Lbs |
| AUXILIARY SHAFT GEAR BOLT | M-10 | 38-54 | 28-40 |
| AUXILIARY SHAFT THRUST PLATE BOLT | M-6 | 8-12 | 6-9 |
| BELT TENSIONER (TIMING PIVOT BOLT) | M-10 | 38-54 | 28-40 |
| BELT TENSIONER (TIMING) ADJUSTING BOLT | M-8 | 19-28 | 14-21 |
| CAMSHAFT GEAR BOLT | M-12 | 68-96 | 50-71 |
| CAMSHAFT THRUST PLATE BOLT | M-6 | 8-12 | 6-9 |
| CARBURETOR TO SPACER STUD | M-8 | 10-20 | 7.5-15 |
| CARBURETOR SPACER NUT | M-8 | 14-19 | 10-14 |
| CARBURETOR SPACER-TO-MANIFOLD BOLT | M-8 | 19-28 | 14-21 |
| CONNECTING ROD NUT (1) | M-9 | 41-49 | 30-36 |
| CRANKSHAFT DAMPER BOLT | M-14 | 136-162 | 100-120 |
| CYLINDER HEAD BOLT (2) | M-12 | 108-122 | 80-90 |
| DISTRIBUTOR CLAMP BOLT | M-10 | 19-28 | 14-21 |
| DISTRIBUTOR VACUUM TUBE TO MANIFOLD ADAPTER | | 7-11 | 5-8 |
| EXHAUST MANIFOLD TO CYLINDER HEAD BOLT, STUD OR NUT (3) | M-10 | 22-31 | 16-23 |
| FLYWHEEL TO CRANKSHAFT BOLT | M-10 | 73-87 | 56-64 |

TORQUE SPECIFICATIONS — CONT'D

SPECIAL APPLICATIONS — CONT'D

| ITEM | TORQUE | | |
|---|--------|---------|---------------|
| | SIZE | N·m | FT-LB |
| FUEL PUMP TO CYLINDER BLOCK | M-8 | 19-28 | 14-21 |
| INTAKE MANIFOLD TO CYLINDER HEAD | M-8 | 19-28 | 14-21 |
| BOLT/NUT — NON-TURBO (4) | | | |
| INTAKE MANIFOLD TO CYLINDER HEAD | M-8 | 18-24 | 13-18 |
| BOLT/NUT — TURBO | M-12 | 108-122 | 80-90 |
| MAIN BEARING CAP BOLT (5) | | 11-24 | 8-18 |
| OIL PRESSURE SENDING WIRE TO BLOCK | M-8 | 19-28 | 14-21 |
| OIL PUMP PICKUP TUBE TO PUMP | M-8 | 19-28 | 14-21 |
| OIL PUMP TO BLOCK | M-8 | 19-28 | 14-21 |
| OIL PAN DRAIN PLUG TO PAN | M-14 | 21-33 | 15-25 |
| OIL PAN TO BLOCK | M-6 | 7-11 | 6-8 |
| | M-8 | 11-13 | 8-10 |
| OIL FILTER INSERT TO CYLINDER BLOCK | | 28-33 | 20-25 |
| OIL FILTER TO ENGINE | (6) | | |
| ROCKER ARM COVER TO CYLINDER HEAD | M-6 | 7-9 | 6-8 |
| SPARK PLUG TO CYLINDER HEAD | M-14 | 7-13 | 5-10 |
| TEMPERATURE SENDING UNIT TO BLOCK | | 11-24 | 8-18 |
| WATER JACKET DRAIN PLUG TO BLOCK | | 32-37 | 23-28 |
| WATER PUMP TO BLOCK BOLT | M-8 | 19-28 | 14-21 |
| EGR VALVE TO SPACER BOLT | M-8 | 19-28 | 14-21 |
| EGR TUBE TO EXHAUST MANIFOLD CONN. | | 13-14 | 9-11 |
| EGR TUBE NUT | | 13-14 | 9-11 |
| AUXILIARY SHAFT COVER BOLT | M-6 | 8-12 | 6-9 |
| WATER OUTLET CONNECTION BOLT | M-8 | 19-28 | 14-21 |
| CYLINDER FRONT COVER BOLT | M-6 | 8-12 | 6-9 |
| INNER TIMING BELT COVER STUD | M-8 | 19-28 | 14-21 |
| OUTER TIMING BELT COVER BOLT | M-6 | 8-12 | 6-9 |
| ROCKER ARM COVER SHIELD BOLT | M-10 | 38-54 | 28-40 |
| THERMATOR CHECK VALVE TO MANIFOLD | (7) | 24-27 | 17-20 |
| FUEL FILTER TO CARBURETOR | | 9-11 | 80-100 In-Lb |
| COMPRESSOR HOUSING BOLT (TURBO) | | 16-19 | 145-165 In-Lb |
| HOUSING BOLT (TURBO) | | 19-20 | 164-181 In-Lb |
| OUTLET ELBOW AND WASTEGATE ASSEMBLY — BOLT (TURBO) | | 19-20 | 164-181 In-Lb |

(1) Torque in sequence in two steps:

- Step 1 — 34-41 N·m (25-30 ft-lb).
- Step 2 — 41-49 N·m (30-36 ft-lb).

(2) Torque cylinder head bolts in sequence in two steps:

- Step 1 — 68-81 N·m (50-60 ft-lb).
- Step 2 — 108-122 N·m (80-90 ft-lb).

(3) Torque in sequence in two steps:

- Step 1 — 7-9 N·m (5-7 ft-lb).
- Step 2 — 22-31 N·m (16-23 ft-lb).

(4) Torque in sequence in two steps:

- Step 1 — 7.9 N·m (5-7 ft-lb).
- Step 2 — 19-28 N·m (14-21 ft-lb) Non-Turbo.
- Step 2 — 18-24 N·m (13-18 ft-lb) Turbo.

(5) Torque in sequence in two steps:

- Step 1 — 68-81 N·m (50-60 ft-lb).
- Step 2 — 108-122 N·m (80-90 ft-lb).

(6) 1/2 turn after gasket contacts surface — oil gasket.

(7) Then rotate to position.

TORQUE SPECIFICATIONS — CONT'D**Ignition Systems**

| Item | Torque | |
|--|----------|-----------------|
| | N·m | As Noted |
| Distributor Holddown Bolt | 23-34 | 17-25 ft-lb |
| Distributor Cap to Distributor Base | 2-2.5 | 18-23 in-lb |
| Stator Assy./Lower Plate Assy. to Distributor Base | 1.7 min. | 15 in-lb (min.) |
| Diaphragm Assembly to Distributor Base | 1.7 min. | 15 in-lb (min.) |
| Spark Plug to Cylinder Head | 9-20 | 7-12 ft-lb |

Carter YFA 1-V, 1-V Feedback Carburetors

| Torque Specifications | N·m | In-Lb |
|--|-----------|---------------|
| Air Horn To Main Body | 3.06-4.18 | 27-37 |
| Main Body to Throttle Body Screws | 5.65-6.23 | 50-55 |
| Accelerator Pump Housing Screws | .68-1.24 | 6-11 |
| Choke Pulldown Diaphragm Housing Screws | 3.62-4.1 | 32-36 |
| Feedback or Altitude Solenoid Screws (YFA-1V Feedback only) | 5.1-5.65 | 45-50 |
| Fast Idle Cam Retaining Screw | 5.65-6.23 | 50-55 |
| Choke Plate to Choke Shaft Screws | 1.02-1.25 | 9-11 |
| Throttle Plate to Throttle Shaft Screws | .45-.57 | 4-5 |
| Main Metering Jet | 2.26-2.5 | 20-22 |
| Choke Cap Retaining Screws | 1.92-2.26 | 17-20 |
| Carburetor to Intake Manifold | 17.7-19 | 13-14 (ft-lb) |
| Bracket Retaining Screw | 6.8 | 60 in-lb |
| Throttle Control Bracket Retainer Nut | 3.4 | 30 in-lb |

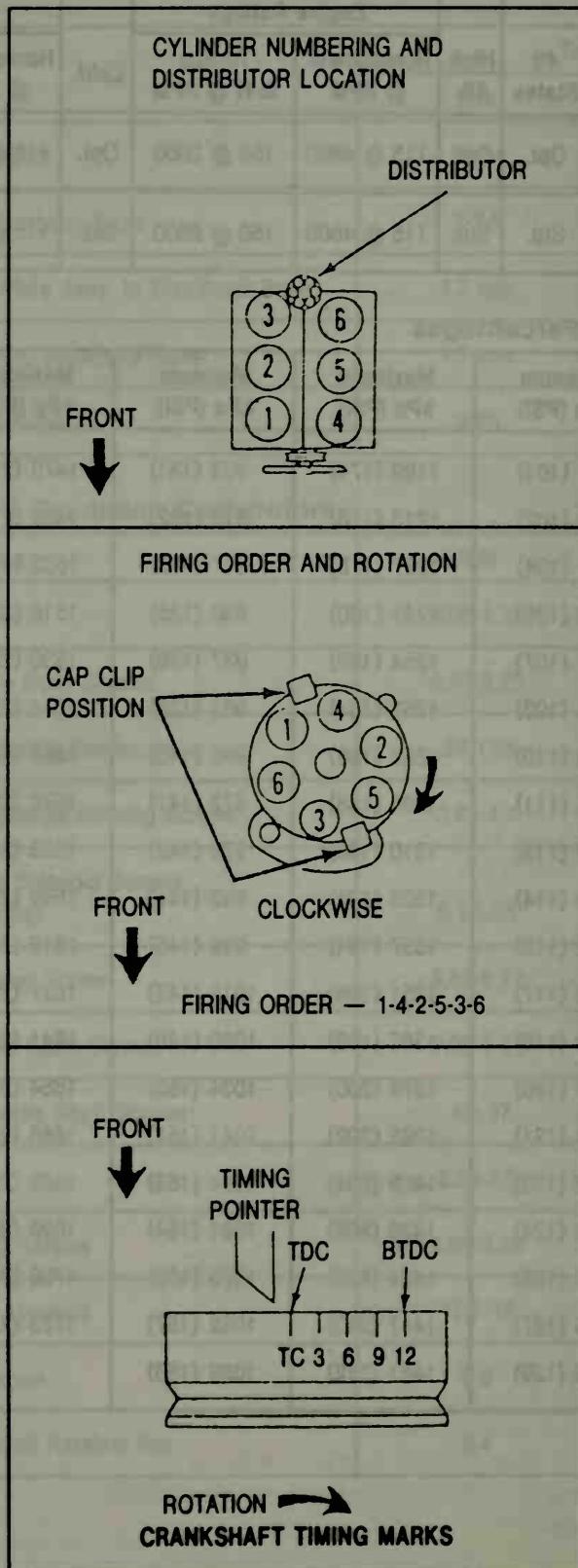
AVAILABILITY — POWER RATINGS

| Availability(1) | 49 States | High Alt. | Engine Ratings | | Calif. | Engine Ratings | |
|------------------------|-----------|-----------|------------------|--------------------|--------|------------------|--------------------|
| | | | Horsepower @ RPM | Torque lb-ft @ RPM | | Horsepower @ RPM | Torque lb-ft @ RPM |
| Ranger (4x2 & 4x4).... | Opt. | Opt. | 115 @ 4800 | 150 @ 2600 | Opt. | 115 @ 4800 | 150 @ 2600 |
| Bronco II..... | Std. | Std. | 115 @ 4800 | 150 @ 2600 | Std. | 115 @ 4800 | 150 @ 2600 |

Compression Test Percentages

| Maximum kPa (PSI) | Minimum kPa (PSI) | Maximum kPa (PSI) | Minimum kPa (PSI) | Maximum kPa (PSI) | Minimum kPa (PSI) |
|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|
| 923 (134) | 697 (101) | 1199 (174) | 903 (131) | 1475 (214) | 1103 (160) |
| 937 (136) | 703 (102) | 1213 (176) | 910 (132) | 1489 (216) | 1116 (162) |
| 951 (138) | 717 (104) | 1227 (178) | 917 (133) | 1503 (218) | 1123 (163) |
| 965 (140) | 723 (105) | 1241 (180) | 930 (135) | 1516 (220) | 1137 (165) |
| 979 (142) | 737 (107) | 1254 (182) | 937 (136) | 1530 (222) | 1144 (166) |
| 992 (144) | 744 (108) | 1268 (184) | 951 (138) | 1544 (224) | 1158 (168) |
| 1006 (146) | 758 (110) | 1282 (186) | 965 (140) | 1558 (226) | 1165 (169) |
| 1020 (148) | 765 (111) | 1296 (188) | 972 (141) | 1572 (228) | 1179 (171) |
| 1034 (150) | 779 (113) | 1310 (190) | 979 (142) | 1585 (230) | 1185 (172) |
| 1048 (152) | 786 (114) | 1323 (192) | 992 (144) | 1599 (232) | 1199 (174) |
| 1061 (154) | 792 (115) | 1337 (194) | 999 (145) | 1613 (234) | 1206 (175) |
| 1075 (156) | 806 (117) | 1351 (196) | 1013 (147) | 1627 (236) | 1220 (177) |
| 1089 (158) | 813 (118) | 1365 (198) | 1020 (148) | 1641 (238) | 1227 (178) |
| 1103 (160) | 827 (120) | 1379 (200) | 1034 (150) | 1654 (240) | 1241 (180) |
| 1116 (162) | 834 (121) | 1392 (202) | 1041 (151) | 1668 (242) | 1247 (181) |
| 1130 (164) | 848 (123) | 1406 (204) | 1054 (153) | 1682 (244) | 1261 (183) |
| 1144 (166) | 854 (124) | 1420 (206) | 1061 (154) | 1696 (246) | 1268 (184) |
| 1158 (168) | 868 (126) | 1434 (208) | 1075 (156) | 1709 (248) | 1282 (186) |
| 1172 (170) | 875 (127) | 1447 (210) | 1082 (157) | 1723 (250) | 1289 (187) |
| 1185 (172) | 889 (129) | 1461 (212) | 1089 (158) | | |

FIRING ORDER — 2.8L V-6



GENERAL SPECIFICATIONS

| | |
|-------------------------------------|---------------|
| DISPLACEMENT | 2.8L (2800cc) |
| NUMBER OF CYLINDERS | 6 |
| BORE AND STROKE | 3.65 x 2.70 |
| FIRING ORDER | 1-4-2-5-3-6 |
| OIL PRESSURE (hot @ 2000 RPM) | 40-60 |
| DRIVE BELT TENSION..... | (1) |
| COMPRESSION PRESSURE..... | (2) |

CYLINDER HEAD AND VALVE TRAIN

| | |
|---|--|
| COMBUSTION CHAMBER VOLUME (cc) | 42.8-44.3 |
| VALVE GUIDE BORE DIAMETER..... | 0.3174.0-0.3184 |
| VALVE SEATS | |
| Width — Intake | 0.060-0.079 |
| Width — Exhaust | 0.060-0.079 |
| Angle | 45° |
| Runout Limit (T.I.R. Max.) | 0.0015 |
| VALVE ARRANGEMENT (Front to Rear) | L.H. = I-E-E-I-E-I R.H. = I-E-I-E-E-I |
| GASKET SURFACE FLATNESS | 0.333 in 6", 0.0006" overall |
| GASKET SURFACE FINISH (RMS) | 60-150 |
| VALVE STEM-TO-GUIDE CLEARANCE | |
| Intake | 0.0008-0.0025 |
| Exhaust | 0.0018-0.0035 |
| Service Clearance | 0.0055 |
| VALVE HEAD DIAMETER | |
| Intake | 1.562-1.577 |
| Exhaust | 1.261-1.276 |
| VALVE FACE RUNOUT LIMIT | 0.002 Max. |
| VALVE FACE ANGLE | 44° |
| VALVE STEM DIAMETER (Std.) | |
| Intake | 0.3159-0.3167 |
| Exhaust | 0.3149-0.3156 |
| (0.008 Oversize) | |
| Intake | 0.3239-0.3245 |
| Exhaust | 0.3228-0.3235 |
| (0.016 Oversize) | |
| Intake | 0.3318-0.3324 |
| Exhaust | 0.3307-0.3314 |
| (0.032 Oversize) | |
| Intake | 0.3475-0.3481 |
| Exhaust | 0.3461-0.3468 |
| VALVE SPRINGS | |
| Compression Pressure (lb. @ Spec. Length) | 60.0-68.0 @ 1.585 138.0-149.0 @ 1.222 |
| Free Length (Approximate) | 1.91 |
| Assembled Height | 1-37/64-1-39/64 |
| Service Limit | (3) |
| Out-Of-Square | 5/64 (0.078) |

Powertrain — Gasoline Engines — 2.8L V-6

CYLINDER HEAD AND VALVE TRAIN — CONT'D

ROCKER ARM

| | |
|---------------------|---------------|
| Shaft Diameter..... | 0.7799-0.7811 |
| Bore Diameter..... | 0.7830-0.7842 |
| Ratio | 1.46:1 |

PUSH ROD RUNOUT (T.I.R. Max.)

| | |
|-------|-------|
| | 0.020 |
|-------|-------|

VALVE TAPPET, LIFTER OR ADJUSTER

| | |
|-------------------------|---------------|
| Diameter (Std.) | 0.8736-0.8741 |
| Clearance To Bore | 0.0009-0.0024 |
| Service Limit | 0.005 |

VALVE LASH CLEARANCE (COLD)*

| | |
|---------------|-------|
| Intake | 0.014 |
| Exhaust | 0.016 |

CAMSHAFT

LOBE LIFT

| | |
|--------------------------------|--------|
| Intake | 0.2555 |
| Exhaust | 0.2555 |
| Allowable Lobe Lift Loss | 0.005 |

THEORETICAL VALVE LIFT @ ZERO LASH

| | |
|---------------|--------|
| Intake | 0.3730 |
| Exhaust | 0.3730 |

END PLAY

| | |
|---------------------|--------------|
| | 0.0008-0.004 |
| Service Limit | 0.009 |

JOURNAL-TO-BEARING CLEARANCE

| | |
|---------------------|--------------|
| | 0.001-0.0026 |
| Service Limit | 0.006 |

CAMSHAFT GEAR BACKLASH

| | |
|-------|-------------|
| | 0.006-0.010 |
|-------|-------------|

JOURNAL DIAMETER

| | |
|-------------------|-------------------------------|
| # 1..... | 43.903-43.923 (1.7285-1.7293) |
| # 2..... | 43.522-43.542 (1.7135-1.7143) |
| # 3..... | 43.141-43.161 (1.6985-1.6992) |
| # 4..... | 42.760-42.780 (1.6835-1.6842) |
| Runout..... | 0.127 (0.005) Max. T.I.R. |
| Out-Of-Round..... | 0.0076 (0.0003) Max. T.I.R. |

BEARING INSIDE DIAMETER

| | |
|----------|-------------------------------|
| # 1..... | 43.948-43.968 (1.7302-1.7310) |
| # 2..... | 43.567-43.587 (1.7152-1.7160) |
| # 3..... | 43.186-43.206 (1.7002-1.7010) |
| # 4..... | 42.805-42.825 (1.6852-1.6860) |

| | |
|------------------------------|-----------------|
| FRONT BEARING LOCATION | (4) 0.040-0.060 |
|------------------------------|-----------------|

CYLINDER BLOCK

| | |
|------------------------------------|--------|
| HEAD GASKET SURFACE FLATNESS | (5) |
| Finish (RMS)..... | 60-150 |

CRANKSHAFT TO REAR FACE OF BLOCK RUNOUT

| | |
|---------------------|-------|
| (T.I.R. Max.) | 0.005 |
|---------------------|-------|

CYLINDER BLOCK — CONT'D

CYLINDER BORE

| | |
|--|---------------|
| Diameter..... | 3.6614-3.6630 |
| Surface Finish (RMS)..... | 18.38 |
| Out-Of-Round..... | 0.0015 |
| Out-Of-Round Service Limit..... | 0.005 |
| Taper Service Limit | 0.010 |
| TAPER BORE DIAMETER..... | 0.8750-0.8760 |
| MAIN BEARING BORE DIAMETER..... | 2.3866-2.3874 |
| DISTRIBUTOR SHAFT BEARING BORE DIAMETER..... | 0.4534-0.4549 |

CRANKSHAFT AND FLYWHEEL

| | |
|------------------------------------|-----------------|
| MAIN BEARING JOURNAL DIAMETER..... | 2.2433-2.2441 |
| Out-Of-Round | 0.0006 |
| Taper Limit..... | 0.0006 per inch |
| Journal Runout..... | 0.002 Max. |
| Surface Finish (RMS)..... | 12 |
| Runout Service Limit..... | 0.005 |

THRUST BEARING JOURNAL

| | |
|-------------|-------------|
| Length..... | 1.039-1.041 |
|-------------|-------------|

CONNECTING ROD JOURNAL

| | |
|---------------------------|-----------------|
| Diameter..... | 2.1252-2.1260 |
| Out-Of-Round | 0.0006 |
| Taper Limit..... | 0.0006 per inch |
| Surface Finish (RMS)..... | 12 Max. |

MAIN BEARING THRUST FACE

| | |
|----------------------|------------|
| Surface Finish..... | 20 Max. |
| Runout (T.I.R.)..... | 0.001 Max. |

FLYWHEEL CLUTCH FACE

| | |
|-------------|-------|
| Runout..... | 0.005 |
|-------------|-------|

FLYWHEEL RING GEAR LATERAL RUNOUT (T.I.R.)

| | |
|-----------------------------|-------|
| Standard Transmission | 0.025 |
| Automatic Transmission..... | 0.060 |

CRANKSHAFT FREE END PLAY

| | |
|--------------------|-------------|
| Service Limit..... | 0.004-0.008 |
|--------------------|-------------|

CONNECTING ROD BEARINGS

| | |
|---|---|
| Clearance To Crankshaft — Desired | 0.0006-0.0016 |
| — Allowable | 0.0005-0.0022 |
| Bearing Wall Thickness (Std.)(6)..... | Red — 0.0548-0.0552 Blue — 0.0552-0.0556 |

MAIN BEARING

| | |
|---|---|
| Clearance To Crankshaft — Desired | 0.0008-0.0015 |
| — Allowable | 0.0005-0.0019 |
| Bearing Wall Thickness (Std.)(6)..... | Red — 0.0707-0.0710 Blue — 0.0711-0.0714 |

(1) Refer to Section 27-06, Accessory Drive Belt Service.

(2) PSI of lowest cylinder must be within 75% of highest (see part 21-01).

(3) 10% pressure loss @ specified length.

(4) Distance in inches that front edge of bearing is installed below front face of cyl. block.

(5) 0.003 in any 6 inches — 0.006 overall.

(6) 0.002 undersize = add 0.001 to standard thickness.

* Cold or 10 minutes after stopping engine.

Powertrain — Gasoline Engines — 2.8L V-6

CONNECTING ROD, PISTON AND RINGS

CONNECTING ROD

| | |
|--|---------------|
| Piston Pin Bore Diameter | 0.9450-0.9452 |
| Crankshaft Bearing Bore Diameter | 2.2370-2.2378 |
| Out-Of-Round | 0.0004 |
| Taper | 0.0004 |
| Length (Center-to-Center) | 5.1386-5.1413 |
| Alignment (Bore-to-Bore Max. Diff.)(7) | |
| Twist | 0.006 |
| Bend | 0.002 |
| Slide Clearance (Assembled to Crank) | |
| Standard | 0.004-0.011 |
| Service Limit | 0.014 |

PISTON

| | |
|--------------------------------|---------------|
| Diameter(8) | |
| Coded Red | 3.6605-3.6615 |
| 0.020 Oversize | 3.6802-3.6812 |
| Piston-to-Bore Clearance | 0.0011-0.0019 |
| Pin Bore Diameter | 0.9450-0.9452 |
| Ring Groove Width | |
| Compression (Top) | 0.0803-0.0811 |
| Compression (Bottom) | 0.1197-0.1205 |
| Oil | 0.1579-0.1587 |

PISTON PIN

| | |
|-------------------------------|------------------|
| Length | 2.835-2.866 |
| Diameter | |
| Standard | 0.9446-0.9450 |
| Pin-To-Piston Clearance | 0.0003-0.0006 |
| Pin-To-Rod Clearance | Interference Fit |

PISTON RINGS

| | |
|-----------------------------|---------------|
| Ring Width | |
| Compression (Top) | 0.0778-0.0783 |
| Compression (Bottom) | 0.1172-0.1177 |
| Side Clearance | |
| Compression (Top) | 0.0020-0.0033 |
| Compression (Bottom) | 0.0020-0.0033 |
| Oil Ring | Snug Fit |
| Service Limit | 0.006 |
| Ring Gap | |
| Compression (Top) | 0.015-0.023 |
| Compression (Bottom) | 0.015-0.023 |
| Oil Ring (Steel Rail) | 0.015-0.055 |

LUBRICATING SYSTEM**OIL PUMP**

| | |
|--|-----------------|
| Relief Valve Spring Tension (Lbs. at Spec. Length) | 13.6-14.7 @ 139 |
| Drive Shaft-To-Housing Bearing Clearance | 0.0015-0.0030 |
| Relief Valve-To-Bore Clearance..... | 0.0015-0.0030 |
| Rotor Assembly End Clearance (Assembled) | 0.004 Max. |
| Outer Race-To-Housing Clearance | 0.001-0.013 |
| OIL CAPACITY (Quarts U.S.)..... | 4 +1 |

TORQUE SPECIFICATIONS — SPECIAL APPLICATIONS

| Item | Size | N·m | (Ft-Lbs) |
|---|-----------------------|---|----------|
| Camshaft Gear Bolt | M-10 | 41-49 | (30-36) |
| Camshaft Thrust Plate | M-8 | 17-21 | (13-16) |
| Connecting Rod Nut | M-8 | 26-33 | (19-24) |
| Crankshaft Pulley (Cast) to Crankshaft | M-12 | 115-130 | (85-96) |
| Cylinder Head Bolt | M-12 | In Sequence | |
| | Step (1) | 39-54 | (29-40) |
| | Step (2) | 54-69 | (40-51) |
| | Step (3) | 95-115 | (70-85) |
| Flywheel to Crankshaft | M-10 | 64-70 | (47-52) |
| Front Cover to Cyl. Block | M-8 | 17-21 | (13-16) |
| Front Plate to Cyl. Block | M-8 | 13-17 | (10-13) |
| Fuel Pump to Cyl. Block | M-8 | Step (1) Hand Start Each Bolt Minimum 2 Threads | |
| | Step (2) Torque Each | 2-8 | (1.5-6) |
| | Step (3) Torque Each | 16-18 | (12-14) |
| | Step (4) Torque Each | 21-25 | (15-18) |
| Intake Manifold (Bolt/Nut) | M-8 | In Sequence Step (1) Hand Start & Snug Nuts @ Positions (3) & (4) | |
| | Step (2) Torque Each | 4-8 | (3-6) |
| | Step (3) Torque Each | 8-15 | (6-11) |
| | Step (4) Torque Each | 15-21 | (11-15) |
| | *Step (5) Torque Each | 21-25 | (15-18) |
| *Repeat After Warm Up | | | |
| Intake Manifold Stud to Cyl. Block Main Bearing Cap Bolt | M-8 | 14-16 | (10-12) |
| | M-12 | 88-102 | (65-75) |

TORQUE SPECIFICATIONS — SPECIAL APPLICATIONS (Cont'd)

| Item | Size | N·m | (Ft-Lbs) |
|--|-------------|--------|--------------------|
| Timing Pointer to Front Cover | M-6 | 7-9 | (5-7) |
| Oil Pump Pick Up Tube to Pump | M-6 | 9-13 | (6-10) |
| Oil Pickup Tube Support to Main Cap (Nut) | M-8 | 17-21 | (12-15) |
| Oil Pump Case | M-6 | 9-13 | (6-10) |
| Oil Pan to Cyl. Block In Sequence | M-6 | 7-10 | (5-8) |
| Oil Filter Adapter to Cyl. Block (Bolt) | | 20-40 | (15-30) |
| Oil Pan Drain Plug | M-14 | 21-28 | (15-21) |
| Rocker Cover to Cyl. Head | M-6 | 4-7 | (3-5) |
| Oil Filter | | (9) | |
| Rocker Arm Shaft Support Bolt | M-10 | 59-67 | (43-50) |
| Water Pump to Front Cover | M-6 | 9-12 | (7-9) |
| Water Outlet Connection | M-8 | 17-21 | (12-15) |
| Water Jacket Drain Plug | 1/2-27 NPSF | 20-25 | (14-18) |
| Spark Plug | M-14 | 25-38 | (18-28) |
| Alternator Mounting Bracket to Cyl. Block | M-10 | 40-55 | (29-40) |
| Alternator Mounting Bracket to Cyl. Head | M-8(2) | 20-30 | (14-22) |
| | M-10 | 40-55 | (29-40) |
| Alternator Pivot Bolt | 7/16 | 61-82 | (45-61) |
| Alternator Adjustment Arm to Front Cover | M-12 | 70-95 | (60-70) |
| Alternaotor Adj. Arm to Alternator | 7/8 | 70-95 | (60-70) |
| Air Conditioning Pulley to Crank Pulley | M-8 | 26-38 | (19-28) |
| Fan to Fan Clutch | M-6 | 8-11 | (6-8) |
| Fan Clutch to Water Pump Hub | LH M-31 | 21-34 | (15-25) |
| Exhaust Manifold to Cyl. Head (Bolt) | M-10 | 27-40 | (20-30) |
| Exhaust Manifold to Cyl. Head (Stud) | M10xM8 | 27-40 | (20-30) |
| Heat Shroud to Exh. Manifold Stud (Nut) | M-8 | 19-30 | (14-22) |
| Heat Shroud Inner to Heat Shroud Outer | M-6 | 5-7 | (50-65) in-lbs) |
| Exhaust Gas Oxygen Sensor to Exh. Manifold | | 39-43 | (28-32) |
| Knock Sensor Assy. to Block | | 40-54 | (30-40) |
| Carb. Spacer to Intake (Socket Head Screw) | M-8 | 20-30 | (14-22) |
| Carb. Spacer to Carb. (Stud) | M-8 | 8 Max. | (6 Max.) |
| Carb. Spacer to Carb. (Nut) | M-8 | 16-20 | (12-14) |
| EGR to Carb. Spacer (Stud) | M-8 | 3-10 | (2-7) |
| | M-10 | 3-10 | (2-7) |
| EGR Valve to Carb. Spacer (Nut) | M-8 | 20-30 | (14-22) |
| | M-10 | 20-30 | (14-22) |
| Fuel Line to Fuel Pump & Filter | | 20-24 | (14-18) |

Powertrain — Gasoline Engines — 2.8L V-6

TORQUE SPECIFICATIONS — SPECIAL APPLICATIONS (Cont'd)

| Item | Size | N·m | (Ft-Lbs) |
|---|------|-------|---------------------|
| Oil Level Indicator Tube to Block | M-10 | 40-55 | (30-40) |
| Pulley/Water Pump | M-6 | 20-30 | (14-22) |
| Pulley/Thermactor Pump | M-6 | 17-25 | (150-220 in-lbs) |
| Thermactor Pump Pivot Bolt | M-10 | 40-55 | (30-40) |
| Thermactor Pump Adj. Arm (Pump & Front Cover) | M-10 | 40-55 | (30-40) |
| Thermactor Tube Assy. to Exhaust Manifold | M-8 | 20-30 | (14-22) |

TORQUE SPECIFICATIONS — GENERAL APPLICATIONS

| U.S. Thread Sizes | N·m | (Ft-Lbs) |
|---------------------|---------|-------------|
| 1/4-20 | 8-12 | (6-9) |
| 5/16-181 | 16-24 | (12-18) |
| 5/16-24 | 19-27 | (14-20) |
| 3/8-16 | 30-43 | (22-32) |
| 3/8-24 | 37-52 | (27-38) |
| 7/16-14 | 55-75 | (40-55) |
| 7/16-20 | 55-81 | (40-60) |
| 1/2-13 | 75-108 | (55-80) |
| Metric Thread Sizes | N·m | (Ft-Lbs) |
| M-6 | 8-12 | (6-9) |
| M-8 | 19-28 | (14-21) |
| M-10 | 38-54 | (28-40) |
| M-12 | 68-96 | (50-71) |
| M-14 | 108-155 | (80-114) |
| Pipe Thread Sizes | N·m | (Ft-Lbs) |
| 1/8 | 5-8 | (6.8-10.8) |
| 1/4 | 12-18 | (16.3-24.4) |
| 3/8 | 22-23 | (29.8-31.2) |
| 1/2 | 25-35 | (33.9-47.5) |

- NOTE: Oil threads with engine oil unless the threads require oil or water resistant sealer.
 - Standard torque limits are for all other fasteners not shown in the special torque charts.
- (7) Pin and crank bearing bore must be parallel and in same vertical plane within the specified total difference when measured at ends of an 8" bar, 4" on each side of rod centerline.
- (8) Measured at the piston pin bore centerline at 90° to the pin.
- (9) One-half turn after gasket contacts sealing surface with oiled gasket.

TORQUE SPECIFICATIONS — CONT'D

General Applications

| U.S. Thread Sizes | N·m | (Ft-Lbs) |
|----------------------------|------------|-----------------|
| 1/4-20 | 8-12 | (6-9) |
| 5/16-18 | 16-24 | (12-18) |
| 5/16-24 | 19-27 | (14-20) |
| 3/8-16 | 30-43 | (22-32) |
| 3/8-24 | 37-52 | (27-38) |
| 7/16-14 | 55-75 | (40-55) |
| 7/16-20 | 55-81 | (40-60) |
| 1/2-13 | 75-108 | (55-80) |
| Metric Thread Sizes | N·m | (Ft-Lbs) |
| M6 | 8-12 | (6-9) |
| M8 | 19-28 | (14-21) |
| M10 | 38-54 | (28-40) |
| M12 | 68-96 | (50-71) |
| M14 | 108-155 | (80-114) |
| Pipe Thread Sizes | N·m | (Ft-Lbs) |
| 1/8 | 5-8 | (6.8-10.8) |
| 1/4 | 12-18 | (16.3-24.4) |
| 3/8 | 22-23 | (29.8-31.2) |
| 1/2 | 22-35 | (33.9-47.5) |

• NOTE: Oil threads with engine oil unless the threads require oil or water resistant sealer.
 • Standard torque limits are for all other fasteners not shown in the special torque charts.

Engine

| Item | Size | N·m | (Ft-Lbs) |
|--|----------------------|--|-----------------|
| Camshaft Gear Bolt | M-10 | 41-49 | (30-36) |
| Camshaft Thrust Plate | M-8 | 17-21 | (13-16) |
| Connecting Rod Nut | M-8 | 26-33 | (19-24) |
| Crankshaft Pulley (Cast) to Crankshaft | M-12 | 115-130 | (85-96) |
| Cylinder Head Bolt | M-12 | In Sequence | |
| | Step (1) | 39-54 | (29-40) |
| | Step (2) | 54-69 | (40-51) |
| | Step (3) | 95-115 | (70-85) |
| Flywheel to Crankshaft | M-10 | 64-70 | (47-52) |
| Front Cover to Cyl. Block | M-8 | 17-21 | (13-16) |
| Front Plate to Cyl. Block | M-8 | 13-17 | (10-13) |
| Fuel Pump to Cyl. Block | M-8 | Step (1) Hand Start Each Bolt Minimum 2 Threads | |
| | Step (2) Torque Each | 2-8 | (1.5-6) |
| | Step (3) Torque Each | 18-18 | (12-14) |
| | Step (4) Torque Each | 21-25 | (15-18) |

Powertrain — Gasoline Engines — 2.8L V-6

TORQUE SPECIFICATIONS — CONT'D

Engine — Cont'd

| Item | Size | N·m | (Ft-Lbs) |
|--|-----------------------|--|-------------------|
| Intake Manifold (Bolt/Nut) | M-8 | In Sequence | |
| | | Step (1) Hand Start & Snug Nuts | |
| | | @ Positions (3) & (4) | |
| | Step (2) Torque Each | 4-8 | (3-6) |
| | Step (3) Torque Each | 8-15 | (6-11) |
| | Step (4) Torque Each | 15-21 | (11-15) |
| | *Step (5) Torque Each | 21-25 | (15-18) |
| | *Repeat After Warm Up | | |
| Intake Manifold Stud to Cyl. Block | M-8 | 14-16 | (10-12) |
| Main Bearing Cap Bolt | M-12 | 88-102 | (65-75) |
| Timing Pointer to Front Cover | M-6 | 7-9 | (5-7) |
| Oil Pump Pick Up Tube to Pump | M-6 | 9-13 | (6-10) |
| Oil Pickup Tube Support to Main Cap (Nut) | M-8 | 17-21 | (12-15) |
| Oil Pump Case | M-6 | 9-13 | (6-10) |
| Oil Pan to Cyl. Block in Sequence | M-6 | 7-10 | (5-8) |
| Oil Filter Adaptor to Cyl. Block (Bolt) | | 20-40 | (15-30) |
| Oil Pan Drain Plug | M-14 | 21-28 | (15-21) |
| Rocker Cover to Cyl. Head | M-6 | 4-7 | (3-5) |
| Oil Filter | | One-half turn after gasket contacts sealing surface with oiled gasket. | |
| Rocker Arm Shaft Support Bolt | M-10 | 59-67 | (43-50) |
| Water Pump to Front Cover | M-6 | 9-12 | (7-9) |
| Water Outlet Connection | M-8 | 17-21 | (12-15) |
| Water Jacket Drain Plug | 1/8-27 NPSF | 20-25 | (14-18) |
| Spark Plug | M-14 | 25-38 | (18-28) |
| Alternator Mounting Bracket to Cyl. Block | M-10 | 40-55 | (29-40) |
| Alternator Mounting Bracket to Cyl. Head | M-8(2) | 20-30 | (14-22) |
| | M-10 | 40-55 | (29-40) |
| Alternator Pivot Bolt | 7 / 16 | 61-82 | (45-61) |
| Alternator Adjustment Arm to Front Cover | M-12 | 70-95 | (60-70) |
| Alternator Adj. Arm to Alternator | 3/8 | 70-95 | (60-70) |
| Air Conditioning Pulley to Crank Pulley | M-8 | 26-38 | (19-28) |
| Fan to Fan Clutch | M-6 | 8-11 | (6-8) |
| Fan Clutch to Water Pump Hub | LH M-31 | 21-34 | (15-25) |
| Exhaust Manifold to Cyl. Head (Bolt) | M-10 | 27-40 | (20-30) |
| Exhaust Manifold to Cyl. Head (Stud) | M10xM8 | 27-40 | (20-30) |
| Heat Shroud to Exh. Manifold Stud (Nut) | M-8 | 19-30 | (14-22) |
| Heat Shroud Inner to Heat Shroud Outer | M-6 | 5-7 | (50-65 in-lbs) |
| Exhaust Gas Oxygen Sensor to Exh. Manifold | | 39-43 | (28-32) |
| Knock Sensor Assy. to Block | | 40-54 | (30-40) |
| Carb. Spacer to Intake (Socket Head Screw) | M-8 | 20-30 | (14-22) |
| Carb. Spacer to Carb. (Stud) | M-8 | 8 Max. | (6 Max.) |

Powertrain — Gasoline Engines — 2.8L V-6

TORQUE SPECIFICATIONS — CONT'D

Engine — Cont'd

| Item | Size | N·m | (Ft-Lbs) |
|---|------|-------|---------------------|
| Carb. Spacer to Carb. (Nut) | M-8 | 16-20 | (12-14) |
| EGR to Carb. Spacer (Stud) | M-8 | 3-10 | (2-7) |
| | M-10 | 3-10 | (2-7) |
| EGR Valve to Carb. Spacer (Nut) | M-8 | 20-30 | (14-22) |
| | M-10 | 20-30 | (14-22) |
| Fuel Line to Fuel Pump & Filter | | 20-24 | (14-18) |
| Oil Level Indicator Tube to Block | M-10 | 40-55 | (30-40) |
| Pulley/Water Pump | M-6 | 20-30 | (14-22) |
| Pulley/Thermactor Pump | M-6 | 17-25 | (150-220 in-lbs) |
| Thermactor Pump Pivot Bolt | M-10 | 40-55 | (30-40) |
| Thermactor Pump Adj. Arm (Pump & Front Cover) | M-10 | 40-55 | (30-40) |
| Thermactor Tube Assy. to Exhaust Manifold | M-8 | 20-30 | (14-22) |

Ignition System

| Description | N·m | Ft-Lbs |
|---|---------|------------|
| Distributor Hold Down Bolts | 23-34 | 17-25 |
| Distributor Cap Adapter Holddown Screws | 2.8-3.9 | 2.1-2.9 |
| Distributor Rotor Holddown screws | 2.8-3.9 | 2.1-2.9 |
| Spark Plugs | 7-20 | 10-15 |
| TFI Ignition Module Mounting Screws | 1.1-1.8 | 9-16 lb-in |

TORQUE SPECIFICATIONS — CONT'D**Engine — Cont'd****2150 2-V Carburetor**

| Description | N·m | In-Lbs |
|---|-----------|----------------|
| Air Horn To Main Body | 3.06-4.18 | 27-37 |
| Fuel Inlet Valve Seat | 5.08 | 45 |
| Accelerator Pump Diaphragm Cover | 1.47-2.25 | 13-20 |
| Choke Pulldown Diaphragm | 2.26-3.38 | 20-30 |
| Aneroid Assembly To Main Body | 2.26-3.38 | 20-30 |
| Fast Idle Lever Retaining Nut | 2.26-3.16 | 20-28 |
| Enrichment Valve | 12-13 | 100-120 |
| Enrichment Valve Cover | 1.47-2.25 | 13-20 |
| Accelerator Pump Discharge Screw | 7.35-9.60 | 65-85 |
| Main Jets | 3.16 | 28 |
| Choke Housing Retaining Screw | 1.47-2.25 | 13-20 |
| Choke Plate Screws | .46-1.01 | 4-9 |
| Carburetor Body Flange To Intake Manifold | 20-21 | 14-16 (ft-lbs) |
| Air Cleaner Anchor Screw | 7-9 | 5-7 (ft-lbs) |
| Air Cleaner Wing Nut (Steel) | 1.70-2.82 | 15-25 |
| Air Cleaner Wing Nut (Plastic) | 2.83-3.95 | 25-35 |
| Temperature Compensated Pump Valve Cover | 2.14-2.71 | 19-24 |
| Integral Altitude Compensator | 2.26-3.39 | 20-30 |
| Feedback Duty Cycle Solenoid | 2.26-3.39 | 20-30 |
| Throttle Position Sensor | 1.24-1.81 | 11-16 |
| Feedback Booster Venturi Screw | 7.34-9.6 | 65-85 |
| Temperature Compensated Pump | 2.14-2.71 | 19-24 |

Powertrain — Gasoline Engines — 4.9L I-6

AVAILABILITY/POWER RATINGS

| Availability | 49 States | High Alt. | Engine Ratings | |
|--|-----------|-----------|------------------|--------------------|
| | | | Horsepower @ RPM | Torque Lb-Ft @ RPM |
| F-150 4x2 w/Man. Trans. & 2.47 axle ... | STD | NA | 118 @ 3000 | 253 @ 1400 |
| F-150 4x2 exc. above & AOD Trans..... | OPT | STD | 120 @ 3200 | 251 @ 1600 |
| F-150 4x2 w/AOD Trans..... | OPT | OPT | 121 @ 3200 | 250 @ 1600 |
| F-250 4x2..... | STD(2) | STD(2) | 120 @ 3200 | 251 @ 1600 |
| F-250 HD 4x2..... | STD(4) | STD(4) | 119 @ 3200 | 230 @ 2000 |
| F-350 4x2..... | STD(3)(4) | STD(3)(4) | 119 @ 3200 | 230 @ 2000 |
| F-150 4x4..... | STD | STD | 120 @ 3200 | 251 @ 1600 |
| F-250 4x4 Under 8500 lbs. GVWR | STD | STD | 120 @ 3200 | 251 @ 1600 |
| Econoline E-150/250 w/Man. Trans..... | STD | STD | 121 @ 3200 | 250 @ 1600 |
| Econoline E-150/250 w/Auto. Trans..... | STD | STD | 121 @ 3200 | 250 @ 1600 |
| Econoline E-350 Exc. Parcel Delivery Van, RV & Commercial Cutaway..... | STD | STD | 119 @ 3200 | 230 @ 2000 |
| Econoline E-350 Parcel Delivery Van..... | STD | STD | 119 @ 3200 | 230 @ 2000 |
| Econoline E-350 RV Cutaway..... | STD(6) | STD(6) | 119 @ 3200 | 230 @ 2000 |
| Econoline E-350 Commercial Cutaway..... | STD | STD | 119 @ 3200 | 230 @ 2000 |
| Club Wagon E-150 w/Man. Trans. | STD | STD | 121 @ 3200 | 250 @ 1600 |
| Club Wagon E-150 w/Auto. Trans..... | STD | STD | 121 @ 3200 | 250 @ 1600 |
| Club Wagon, Super Wagon E-250..... | STD | STD | 119 @ 3200 | 230 @ 2000 |
| Super Wagon E-350..... | STD | STD | 119 @ 3200 | 230 @ 2000 |
| Bronco..... | STD | STD | 120 @ 3200 | 251 @ 1600 |

(1) No extra cost.

(2) NA w/Under 8500 lbs. GVWR Regular Cab Chassis Cab.

(3) NA w/133" wb. models, 136.8" wb. SRW Regular Cab Chassis Cab or 136.8" & 160.8" wb. Regular Cab Chassis Cab w/Payload Pkg. No. 2.

(4) 7.5L (460) 4V V-8 recommended for models over 8500 lbs. GVWR Completed w/Second Unit Bodies that add large frontal areas.

(5) NA w/SuperVan.

(6) Available w/Payload Pkg. No. 1 only.

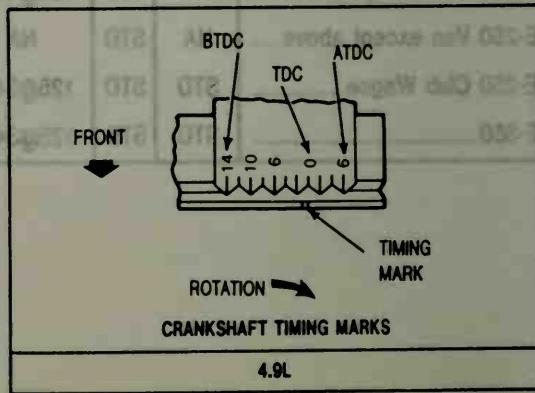
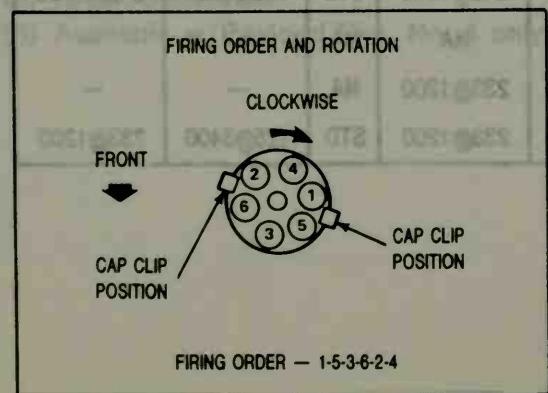
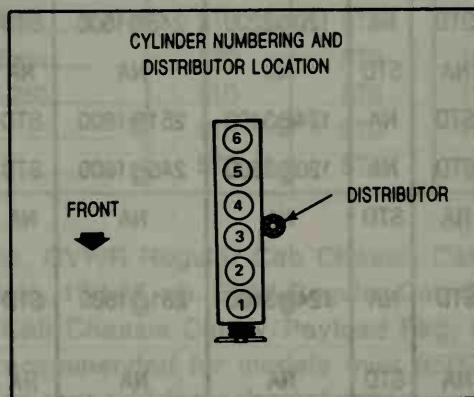
AVAILABILITY/POWER RATINGS — CONT'D

| Vehicle | 49 States | High Alt. | Engine Ratings | | Calif. | Engine Ratings | |
|---|-----------|-----------|------------------|--------------------|--------|------------------|--------------------|
| | | | Horsepower @ RPM | Torque lb-ft @ RPM | | Horsepower @ RPM | Torque lb-ft @ RPM |
| F-150 4x2 w/Man. Trans. & 2.47 axle | STD | NA | 119@3000 | 258@1400 | NA | — | — |
| F-150 4x2 w/Man. Trans.... | NA | STD | 124@3400 | 251@1800 | NA | — | — |
| F-150 4x2 except above | STD | STD | 120@3200 | 245@1600 | STD | 120@3200 | 245@1600 |
| F-150 4x4 w/Man. Trans.... | STD | STD | 124@3400 | 251@1800 | STD | 124@3400 | 251@1800 |
| F-150 4x4 w/Auto. Trans. | STD | STD | 120@3200 | 245@1600 | STD | 120@3200 | 245@1600 |
| F-250 4x2 w/Man. Trans.... | STD | STD | 124@3400 | 251@1800 | STD | 124@3400 | 251@1800 |
| F-250 4x2 w/Auto. Trans. | STD | NA | 120@3200 | 245@1600 | STD | 120@3200 | 245@1600 |
| F-250 4x2 w/Auto. Trans. | NA | STD | NA | NA | NA | — | — |
| F-250 4x4 w/Man. Trans.... | STD | STD | 124@3400 | 251@1800 | STD | 124@3400 | 251@1800 |
| F-250 4x4 w/Auto. Trans. | STD | NA | 120@3200 | 245@1600 | STD | 120@3200 | 245@1600 |
| F-250 HD 4x2..... | STD | STD | 125@3400 | 233@1200 | NA | — | — |
| F-350 4x2..... | STD | STD | 125@3400 | 233@1200 | NA | — | — |
| Bronco w/Man. Trans. | STD | STD | 124@3400 | 251@1800 | STD | 124@3400 | 251@1800 |
| Bronco w/Auto. Trans..... | STD | NA | 120@3200 | 245@1600 | STD | 120@3200 | 245@1600 |
| Bronco w/Auto. Trans..... | NA | STD | NA | NA | NA | — | — |
| E-150 w/Auto. OD Trans.... | STD | NA | 124@3400 | 251@1800 | STD | 124@3400 | 251@1800 |
| E-150 except above..... | STD | NA | 120@3200 | 245@1600 | STD | 120@3200 | 245@1600 |
| E-150 except above..... | NA | STD | NA | NA | NA | — | — |
| E-250 Van w/Auto. OD Trans..... | STD | NA | 124@3400 | 251@1800 | STD | 124@3400 | 251@1800 |
| E-250 Van w/Auto. OD Trans..... | NA | STD | NA | NA | NA | — | — |
| E-250 Van except above.... | STD | NA | 120@3200 | 245@1600 | STD | 120@3200 | 245@1600 |
| E-250 Van except above.... | NA | STD | NA | NA | NA | — | — |
| E-250 Club Wagon | STD | STD | 125@3400 | 233@1200 | NA | — | — |
| E-350 | STD | STD | 125@3400 | 233@1200 | STD | 125@3400 | 233@1200 |

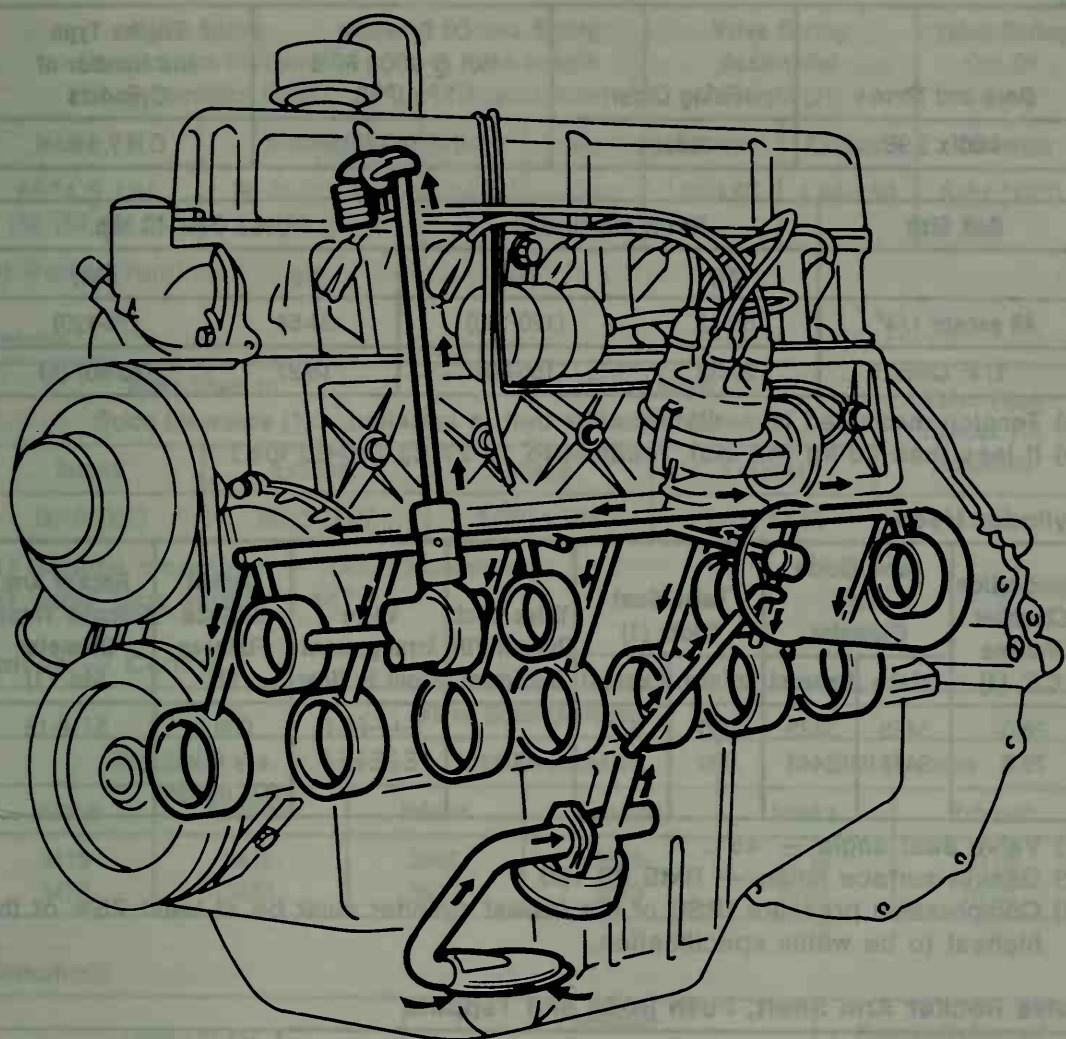
COMPRESSION TEST PERCENTAGES

| Maximum kPa (PSI) | Minimum kPa (PSI) | Maximum kPa (PSI) | Minimum kPa (PSI) | Maximum kPa (PSI) | Minimum kPa (PSI) |
|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|
| 923 (134) | 697 (101) | 1199 (174) | 903 (131) | 1475 (214) | 1103 (160) |
| 937 (136) | 703 (102) | 1213 (176) | 910 (132) | 1489 (216) | 1116 (162) |
| 951 (138) | 717 (104) | 1227 (178) | 917 (133) | 1503 (218) | 1123 (163) |
| 965 (140) | 723 (105) | 1241 (180) | 930 (135) | 1516 (220) | 1137 (165) |
| 979 (142) | 737 (107) | 1254 (182) | 937 (136) | 1530 (222) | 1144 (166) |
| 992 (144) | 744 (102) | 1268 (184) | 951 (138) | 1544 (224) | 1158 (168) |
| 1006 (146) | 758 (110) | 1282 (186) | 965 (140) | 1558 (226) | 1165 (169) |
| 1020 (148) | 765 (111) | 1296 (188) | 972 (141) | 1572 (228) | 1179 (171) |
| 1034 (150) | 779 (113) | 1310 (190) | 979 (142) | 1585 (230) | 1185 (172) |
| 1048 (152) | 786 (114) | 1323 (192) | 992 (144) | 1599 (232) | 1199 (174) |
| 1061 (154) | 792 (115) | 1337 (194) | 999 (145) | 1613 (234) | 1206 (175) |
| 1075 (156) | 806 (117) | 1351 (196) | 1013 (147) | 1627 (236) | 1220 (177) |
| 1089 (158) | 813 (118) | 1365 (198) | 1020 (148) | 1641 (238) | 1227 (178) |
| 1103 (160) | 827 (120) | 1379 (200) | 1034 (150) | 1654 (240) | 1241 (180) |
| 1116 (162) | 834 (121) | 1392 (202) | 1041 (151) | 1668 (242) | 1247 (181) |
| 1130 (164) | 848 (123) | 1406 (204) | 1054 (153) | 1682 (244) | 1261 (183) |
| 1144 (166) | 854 (124) | 1420 (206) | 1061 (154) | 1696 (246) | 1268 (184) |
| 1158 (168) | 868 (126) | 1434 (208) | 1075 (156) | 1709 (248) | 1282 (186) |
| 1172 (170) | 875 (127) | 1447 (210) | 1082 (157) | 1723 (250) | 1289 (187) |
| 1185 (172) | 889 (129) | 1461 (212) | 1089 (158) | | |

Firing Order, Distributor Location and Timing Marks



OIL FLOW



Powertrain — Gasoline Engines — 4.9L I-6

SERVICE SPECIFICATIONS

General Specifications

| Bore and Stroke | Firing Order | Oil Pressure Hot @ 2000 RPM kPa (PSI) | Engine Type and Number of Cylinders |
|-----------------|--------------|---|---|
| 4.00 x 3.98 | 153624 | 275 (40-60) | O.H.V. I-6 |

| Belt Size | Newly Installed(a) | | Used Over 10 Min. | |
|-----------------|--------------------|-----------|-------------------|-------------|
| | Kg | (lbs) | Kg | (lbs) |
| All except 1/4" | 55-72 | (120-160) | 34-54 | (75-120) |
| 1/4" Only | 22-36 | (50-80) | 18-27 | (40-60) (b) |

(a) Tension measured immediately after belt is installed.

(b) If less than 18 kg (40 lbs), readjust to 18-27 kg (40-60 lbs.)

Cylinder Head

| Combustion Chamber Volume C.C. (3) | Valve Guide Bore Diameter | | Valve Seat Width (1) | | Valve Seat Runout TIR Maximum | Valve Arrangement Front to Rear | Gasket Surface Flatness (2) | Rocker Arm Fulcrum Thread Diameter Std. (1) |
|---|---------------------------------|-----------------|-------------------------|---------------|-------------------------------------|---------------------------------------|--------------------------------------|--|
| | Intake | Exhaust | Intake | Exhaust | | | | |
| 76.0- 79.0 | .3433- .3443 | .3433- .3443 | .060- .080 | .070- .090 | .002 | E-I-E-I-E-I- E-I-E-I-E-I | .006 in any 6 in. .007 overall | 5/16-18 |

(1) Valve seat angle — 45°.

(2) Gasket surface finish — RMS 60-150.

(3) Compression pressure (PSI) of the lowest cylinder must be at least 75% of the highest to be within specification.

Valve Rocker Arm Shaft, Push Rods and Tappets

| Rocker Arm Lift Ratio to 1 | Push Rod Runout TIR Maximum | Valve Tappet or Lifter | | | Collapsed Tappet Gap (Clearance) | |
|-------------------------------------|--------------------------------------|------------------------|--------------------------|---------------------------------------|-------------------------------------|-----------|
| | | Standard Diameter | Clearance to Bore (1) | Hydraulic Lifter Leakdown Rate (2) | Allowable | Desired |
| 1.61 | .015 | .8740-.8745 | .0007-.0027 | 10 to 50 seconds for 1/16 travel | .100-.200 | .125-.175 |

(1) Service limit — .005.

(2) Time required for plunger to leakdown .0625 under load of 50 lbs. using leakdown fluid in tappet.

SERVICE SPECIFICATIONS — CONT'D

Valve Springs

| Valve Spring Compression Pressure Lbs. @ Specified Height | | Valve Spring Free Length (Approximate) | | Valve Spring Assembled Height (2) | | Valve Spring Out Of Square |
|---|----------------|--|---------|---|-----------|----------------------------------|
| Intake (1) | Exhaust | Intake | Exhaust | Intake | Exhaust | Maximum |
| 66-74 @ 1.64 | 66-74 @ 1.470 | 1.96 | 1.78 | 1.61-1.67 | 1.44-1.50 | 5/64 (.078) |
| 166-184 @ 1.24 | 166-184 @ 1.07 | | | | | |

(2) Pad to retainer.

Valves

| Valve Stem to Guide Clearance (1) | | Valve Head Diameter (2) | | Valve Face Runout TIR Maximum |
|--------------------------------------|-------------|----------------------------|-------------|-------------------------------------|
| Intake | Exhaust | Intake | Exhaust | |
| .0010-.0027 | .0010-.0027 | 1.769-1.793 | 1.551-1.569 | .0020 |

(1) Service clearance — .0055 Maximum.

(2) Valve face angle — 44°.

Valves — Cont'd

| Valve Stem Diameter | | | | | |
|---------------------|---------|---------------|---------|---------------|---------|
| Standard | | .015 Oversize | | .030 Oversize | |
| Intake | Exhaust | Intake | Exhaust | Intake | Exhaust |
| .3416- | .3416- | .3566- | .3566- | .3716- | .3716- |
| .3423 | .3423 | .3573 | .3573 | .3723 | .3723 |

Camshaft

| Lobe Lift (1) | | Camshaft End Play | | Camshaft Journal To Bearing Clearance (2) |
|---------------|----------|----------------------|---------------|---|
| Intake | Exhaust | End Play | Service Limit | |
| .249 | .249 | .001-.007 | .009 | .001-.003 |
| .247 (3) | .247 (3) | | | |

(1) Maximum allowable lift loss — .005.

(2) Service clearance — .006.

(3) F-150 4 x 2 w/2.47:1 or 2.75:1 axle ratio and manual transmission (49S).

SERVICE SPECIFICATIONS — CONT'D

Camshaft Drive

| Camshaft Journal Diameter — Standard (1) | | | | Camshaft Bearing Inside Diameter | | | | Camshaft Front Bearing Location (2) | Assembled Gear Face Runout (3) | |
|---|-----------------|-----------------|-----------------|-------------------------------------|-----------------|-----------------|-----------------|---|-----------------------------------|----------|
| No. 1 | No. 2 | No. 3 | No. 4 | No. 1 | No. 2 | No. 3 | No. 4 | | Crankshaft | Camshaft |
| 2.017- 2.018 | 2.017- 2.018 | 2.017- 2.018 | 2.017- 2.018 | 2.019- 2.020 | 2.019- 2.020 | 2.019- 2.020 | 2.019- 2.020 | .020- .035 | .005 | .005 |
| | | | | | | | | | | |

(1) Camshaft journal runout — .008 TIR maximum.

(2) Distance in inches that front edge of the bearing is installed below the front face of the cylinder block.

(3) Gear backlash — .004-.100.

Cylinder Block

| Cylinder Bore Diameter (1) | Main Bearing Bore Diameter (2) | Distributor Shaft Bearing Bore Diameter | Head Gasket Surface Flatness | Head Gasket Surface Finish | Tappet Bore Diameter |
|-------------------------------|--------------------------------------|---|-----------------------------------|-------------------------------|-------------------------|
| 4.0000- 4.0048 | 2.5902- 2.5910 | .5155- .5165 | .003 in any 6 in. .006 overall | RMS 60-150 | .8752- .8767 |
| | | | | | |

(1) Maximum out-of-round .0015, Service limit — .005, Maximum taper service limit — .010, Cylinder bore surface finish RMS 18-38, Bore taper service limit — .010

(2) Crankshaft to rear face of block runout. TIR maximum .005

SERVICE SPECIFICATIONS — CONT'D

Crankshaft and Flywheel

| Main Bearing Journal Diameter(1) | Main Bearing Journal Runout TIR Maximum(2) | Main Bearing Thrust Face Runout TIR Maximum | Main Bearing Journal Taper Maximum Per Inch | Thrust Bearing Journal Length | Main and Rod Bearing Journal Finish RMS Maximum | Main Bearing Thrust Face Finish RMS Maximum |
|----------------------------------|--|---|---|-------------------------------|---|---|
| 2.3982-2.3990 | .002 | .001 | .0005 | 1.1990-1.2010 | 12 | 35 Front — 25 Rear |

(1) Maximum out-of-round — .0006.

(2) Service limit — .005.

Crankshaft and Flywheel — (Cont'd)

| Connecting Rod Journal Diameter(1) | Connecting Rod Journal Taper Per Inch Maximum | Crankshaft Free End Play(2) | Flywheel Clutch Face Runout Assembled | Flywheel Ring Gear Lateral Runout TIR | | Flywheel Clutch Face Runout |
|------------------------------------|---|-----------------------------|---------------------------------------|---------------------------------------|--------------|-----------------------------|
| | | | | Std. Trans. | Auto. Trans. | |
| 2.1228-2.1236 | .0006 | .004-.008 | .010 | .040 | .060 | 0.010 |

(1) Maximum out-of-round — .0006.

(2) Service limit — .012.

Crankshaft Bearings

| Connecting Rod Bearing to Crankshaft Clearance Selective Fit | | | Main Bearing to Crankshaft Clearance Selective Fit | | |
|--|-------------|--------------------------------|--|-------------|--------------------------------|
| Desired | Allowable | Bearing Wall Thickness Std.(1) | Desired | Allowable | Bearing Wall Thickness Std.(1) |
| .0008-.0015 | .0007-.0024 | .0752-.0757 | .0008-.0015 | .0010-.0028 | .0951-.0956 |

(1) For .002 undersize add .001 to standard wall thickness.

Connecting Rod

| Piston Pin Bore or Bushing I.D. | Rod Bearing Bore I.D.(1) | Rod Length Center to Center | Connecting Rod Alignment Maximum Total Difference | | Rod to Crankshaft Assembled Side Clearance(3) |
|---------------------------------|--------------------------|-----------------------------|---|---------|---|
| | | | Twist(2) | Bend(2) | |
| .9734-.9742 | 2.2750-2.2758 | 6.2082-6.2112 | .024 | .012 | .006-.013 |

(1) Connecting rod bearing bore maximum out-of-round — .0006.

(2) Pin bushing and crankshaft bore must be parallel and in same vertical plane within specified total difference when measured at the ends of an 8-inch long bar, 4 inches on each side of rod centerline.

(3) Service limit — .018.

Powertrain — Gasoline Engines — 4.9L I-6

SERVICE SPECIFICATIONS — CONT'D

Piston

| Diameter(1) | | | Piston to(3) Bore Clearance | Piston Pin Bore Diameter | Ring Groove Width Compression | | |
|-------------------|-------------------|-------------------|--------------------------------|--------------------------------|----------------------------------|-----------|-----------|
| Coded Red | Coded Blue | .003 Oversize | Selective Fit | | Top | Bottom | Oil |
| 3.9982- 3.9988 | 3.9994- 4.0000 | 4.0008- 4.0014 | .0010- .00180 | .9754- .9757 | .080-.081 | .080-.081 | .188-.189 |

(1) Measured at the piston pin bore centerline at 90° to the pin.

(2) Over 8500 Lbs. GVW.

(3) Rebuild specification only.

Piston Pin

| Length | Diameter | | | To Piston Pin Bore Clearance(1) | To Connecting Rod Bushing Clearance |
|-------------|-------------|---------------|---------------|------------------------------------|--|
| | Standard | .001 Oversize | .002 Oversize | | |
| 3.150-3.170 | .9749-.9754 | .9760-.9763 | .9770-.9773 | .0002-.0004(2) | Interference Fit |

(1) Selective Fit.

(2) Under 8500 Lbs. GVW — .0003-.0005

Piston Rings

| Ring Width Compression | | Side Clearance Compression(1) | | | Ring Gap Compression | | |
|------------------------|-------------|-------------------------------|-----------|------|----------------------|-----------|-----------|
| Top | Bottom | Top | Bottom | Oil | Top | Bottom | Oil(2) |
| .0774-.0781 | .0770-.0780 | .0019-.0036 | .002-.004 | Snug | .010-.020 | .010-.020 | .015-.055 |

(1) Service limit — .002 maximum increase in clearance.

(2) Steel rail.

Oil Pump and Oil Capacity

| Relief Valve Spring Pressure Lbs. @ Specified Length | Driveshaft to Housing Clearance | Relief Valve to Housing Clearance | Rotor Assembly End Clearance | Outer Race to Housing Clearance | Engine Oil Capacity | | | Inner(2) to Outer Rotor Tip Clearance |
|---|--|---|---------------------------------------|---------------------------------------|---------------------|--------------------|--------|---|
| | | | | | U.S. Quarts | Imperial Quarts | Liters | |
| 20.6-22.6 @ 2.49 | .0015-.0030 | .0015-.0030 | .004 Maximum | .001-.013 | 5 | 4-2 | 4-7 | .012 Maximum |

(1) Add 1 U.S. quart (or equivalent in Imperial Quarts or Liters) when replacing filter.

(2) With feeler gauge inserted 1/2 inch minimum and rotor removed from pump housing.

SERVICE SPECIFICATIONS — CONT'D**Fuel Pump — Mechanical**

| Static Pressure (PSI)(1) | Volume Flow — Minimum(1)(2) | Eccentric Total Lift — Inches |
|--------------------------|-----------------------------|-------------------------------|
| 5.0-7.0 | .23L (1 pint) in 20 seconds | .290-.310 |

- (1) On the engine with temperatures normalized and at normal curb idle speed, in neutral.
 (2) The inside diameter of the smallest passage in the test flow circuit must not be less than .220.

Torque Specifications

NOTE: All values are in N·m (ft-lb) unless otherwise noted. Oil threads with engine oil unless the threads require oil or water-resistant sealer. The standard torque limits listed below are applicable for all functions not listed in the special torque chart.

General Torque Specifications

| 1/4-20 | 5/16-18 | 5/16-24 | 3/8-16 | 3/8-24 | 7/16-14 | 7/16-20 | 1/2-13 | 9/16-18 |
|---------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|---------------------|
| 8-12 (6-9) | 17-24 (12-18) | 19-27 (14-20) | 30-43 (22-32) | 37-51 (27-38) | 61-77 (45-57) | 55-81 (40-60) | 75-81 (55-60) | 116-162 (85-120) |

Pipe Threads

| 1/8-27 | 1/4-18 | 3/8-18 | 1/2-14 |
|------------|---------------|---------------|---------------|
| 7-11 (5-8) | 17-24 (12-18) | 30-44 (22-33) | 34-47 (25-35) |

TORQUE SPECIFICATIONS — CONT'D

Specific Applications

| Item | Torque | |
|---|--|---------------|
| | N·m | (ft-lb) |
| Connecting Rod Nut | 55-61 | 40-45 |
| Cylinder Front Cover | 17-24 | 12-18 |
| Cylinder Head Bolts | (1) | (1) |
| Damper to Crankshaft | 177-203 | 130-150 |
| EGR Valve to Carburetor Spacer or Intake Manifold | 17-24 | 12-18 |
| Flywheel to Crankshaft | 102-115 | 75-85 |
| Main Bearing Cap Bolts | 82-94 | 60-70 |
| Manifold to Cylinder Head — Intake (2) | 30-43 | 22-32 |
| Manifold to Cylinder Head — Exhaust (2) | 30-43 | 22-32 |
| Oil Filter Insert to Cylinder Block/Adaptor | 20-48 | 15-35 |
| Oil Filter Adaptor to Cylinder Block | 55-67 | 40-50 |
| Oil Filter to Adaptor or Cylinder Block | 1/2 turn after gasket contacts sealing surface — oiled gasket | |
| Oil Inlet Tube to Pump | 14-20 | 10-15 |
| Oil Pan Drain Plug | 21-33 | 15-25 |
| Oil Pan to Cylinder Block (2) | 14-17 | 10-12 |
| Oil Pump to Cylinder Block | 14-20 | 10-12 |
| Oil Inlet Tube to Main Bearing Cap | 30-43 | 22-32 |
| Pulley to Damper Bolt | 48-67 | 35-50 |
| Rocker Arm Bolt | 24-31 | 17-23 |
| Spark Plug to Cylinder Head | 14-20 | 10-15 |
| Valve Rocker Arm Cover | 5-9 | 4-7 |
| Valve Push Rod — Cover to Cylinder Block | 1.7-2.25 | (15-20 in-lb) |
| Water Outlet Housing | 17-24 | 12-18 |
| Water Pump to Block/Front Cover | 17-24 | 12-18 |
| Alternator Bracket to Cylinder Block — Bolt | 41-61 | 30-45 |

(1) Progressively increase the tightness in three steps using this sequence:

1st step — Tighten all bolts to 67-75 N·m (50-55 ft-lb).

2nd step — Tighten all bolts to 82-88 N·m (60-65 ft-lb).

3rd step — Tighten all bolts to 94-115 N·m (70-85 ft-lb).

(2) Follow bolt tightening sequence mentioned above.

TORQUE SPECIFICATIONS — CONT'D

Specific Applications — Cont'd

| Item | Torque | |
|--|--------|-----------------|
| | N·m | (ft-lb) |
| Alternator Adjusting Arm to Cylinder Block Bolt | 26-36 | 19-27 |
| Alternator Adjusting Arm to Alternator Bolt | 33-54 | 24-40 |
| Thermactor Pump Pivot Bolt | 41-48 | 30-35 |
| Thermactor Pump Adjusting Arm to Pump | 30-43 | 22-32 |
| Thermactor Pump Pulley to Pump Hub | 17-24 | (150-220 in-lb) |
| Thermactor Pump Bracket to Cylinder Block | 30-43 | 22-32 |
| Fuel Filter to Carburetor/Pump | 10-11 | (80-100 in-lb) |
| Carburetor Attaching Nuts | 17-20 | 12-15 |
| Camshaft Thrust Plate to Cylinder Block | 16-24 | 12-18 |
| Fuel Pump to Cylinder Block/Front Cover | 17-24 | 12-18 |
| Carburetor Mounting Stud | 7-13 | 5-10 |
| Distributor Clampdown | 24-33 | 17-25 |
| Intake Manifold Vacuum Fittings | 8-13 | 6-10 |
| Timing Pointer to Front Cover | 17-24 | 12-18 |
| Thermactor Air Manifold to Cylinder Head (Nut and Ferrule Assy.) | 19-22 | 14-16 |
| Thermactor Air Check Valve to Thermactor Air Manifold | 22-26 | 16-19 |
| Pressure Plate and Cover Assy. to Flywheel | 16-25 | 12-18 |
| Fuel Line Nuts | 20-25 | 15-18 |

(1) 1.00 (30) CCM = V-8 cylinder displacement. CCM = 2.547 in. cubic inches per application inch of bore. Cylinder bore is the year. For further torque information, refer to the Engine Torque Availability charts in this section of the Light Truck Facts book.

TORQUE SPECIFICATIONS — CONT'D**Ignition System**

| Item | Torque | |
|--|----------|-----------------|
| | N·m | As Noted |
| Distributor Holddown Bolt | 23-34 | 17-25 ft-lb |
| Distributor Adapter to Distributor Base | 2-2.5 | 18-23 in-lb |
| Stator Assy. Lower Plate Assy. to Distributor Base | 1.7 min. | 15 in-lb (min.) |
| Diaphragm Assembly to Distributor Base | 1.7 min. | 15 in-lb (min.) |
| Spark Plug to Cylinder Head 3.8L | 20-30 | 15-22 ft-lb |
| 4.9L | 20-27 | 15-20 ft-lb |
| 5.0L, 5.8L, 7.5L | 9-20 | 7-15 ft-lb |

Carter YFA 1-V Carburetor

| Components | N·m | in-lb |
|---|-----------|---------------|
| Air Horn to Main Body Screws | 3.06-4.18 | 27-37 |
| Main Body to Throttle Body Screws | 5.65-6.23 | 50-55 |
| Accelerator Pump Housing Screws | .68-1.24 | 6-11 |
| Choke Pulldown Diaphram Housing Screws | 3.62-4.1 | 32-36 |
| Feedback or Altitude Solenoid Screws | 5.1-5.65 | 45-50 |
| Fast Idle Cam Retaining Screw | 5.65-6.23 | 50-55 |
| Choke Plate to Choke Shaft Screws | 1.02-1.25 | 9-11 |
| Throttle Plate to Throttle Shaft Screws | .45-.57 | 4-5 |
| Main Metering Jet | 2.26-2.5 | 20-22 |
| Choke Cap Retaining Screws | 1.92-2.26 | 17-20 |
| Carburetor to Intake Manifold | 17.7-19 | (13-14 ft-lb) |
| Throttle Position Sensor | 1.3-1.8 | 11-16 |
| Idle Speed Control to Bracket | 3.7-4.5 | 32-40 |
| Idle Speed Assembly | 6.8-7.9 | 60-70 |

- (1) Progressively increase the torque in three steps using 3/8" wrench.
- 1st Step — Tighten all bolts to 7-10 N·m (50-75 in-lb).
- 2nd Step — Tighten all bolts to 17-20 N·m (120-150 in-lb).
- 3rd Step — Tighten all bolts to 34-41 N·m (250-350 in-lb).
- (2) Follow bolt tightening sequence mentioned above.

Powertrain — Gasoline Engines — 5.0L/5.8L V-8

AVAILABILITY/POWER RATINGS — 5.0L

| Availability(1) | 49 States | High Alt. | Engine Ratings | | Calif. | Engine Ratings | |
|--------------------------|-----------|-----------|------------------|--------------------|--------|------------------|--------------------|
| | | | Horsepower @ RPM | Torque lb-ft @ RPM | | Horsepower @ RPM | Torque lb-ft @ RPM |
| F-150 4x2 w/Man. Trans. | Opt. | NA | 150 @ 3600 | 249 @ 2600 | NA | — | — |
| F-150 4x2 w/Man. Trans. | NA | Opt. | NA | NA | NA | — | — |
| F-150 4x2 w/Auto. Trans. | Opt. | Opt. | 145 @ 3400 | 248 @ 2200 | Opt. | NA | NA |
| F-150 4x4 w/Auto. Trans. | NA | Opt. | NA | NA | NA | — | — |
| F-150 4x4 w/Auto. Trans. | Opt. | NA | 150 @ 3600 | 249 @ 2600 | Opt. | NA | NA |
| F-150 4x4 w/Man. Trans. | Opt. | Opt. | 150 @ 3600 | 249 @ 2600 | NA | — | — |
| F-250 4x2 w/Man. Trans. | Opt. | Opt. | 150 @ 3600 | 249 @ 2600 | NA | — | — |
| F-250 4x2 w/Auto. Trans. | Opt. | Opt. | 145 @ 3400 | 248 @ 2200 | Opt. | NA | NA |
| F-250 4x4 | Opt. | Opt. | 150 @ 3600 | 249 @ 2600 | Opt. | NA | NA |
| Bronco..... | Opt. | Opt. | 150 @ 3600 | 249 @ 2600 | Opt. | NA | NA |
| E-150 | Opt. | Opt. | 150 @ 3600 | 249 @ 2600 | Opt. | NA | NA |
| E-250 Van | Opt. | NA | 150 @ 3600 | 249 @ 2600 | Opt. | NA | NA |
| E-250 Van | NA | Opt. | NA | NA | NA | — | — |

5.8L 2-V — Engine

| Availability(1) | 49 States | High Alt. | Engine Ratings | | Calif. | Engine Ratings | |
|-----------------------|-----------|-----------|------------------|--------------------|--------|------------------|--------------------|
| | | | Horsepower @ RPM | Torque lb-ft @ RPM | | Horsepower @ RPM | Torque lb-ft @ RPM |
| F-150 4x2 | Opt. | Opt. | 150 @ 3400 | 282 @ 2000 | Opt. | NA | NA |
| F-150 4x4 | Opt. | Opt. | 150 @ 3400 | 282 @ 2000 | Opt. | NA | NA |
| F-250 4x2 | Opt. | Opt. | 150 @ 3400 | 282 @ 2000 | Opt. | NA | NA |
| F-250 4x4 | Opt. | Opt. | 150 @ 3400 | 282 @ 2000 | NA | — | — |
| F-250 HD 4x2 | Opt. | Opt. | NA | NA | NA | — | — |
| F-250 HD 4x4 | Std. | Std. | NA | NA | NA | — | — |
| F-350 4x2 | Opt.(2) | Opt.(2) | NA | NA | NA | — | — |
| F-350 4x4 | Std. | Std. | NA | NA | NA | — | — |
| Bronco..... | Opt. | Opt. | 150 @ 3400 | 282 @ 2000 | NA | — | — |
| E-150 | Opt. | Opt. | 150 @ 3400 | 282 @ 2000 | Opt. | NA | NA |
| E-250 Van | Opt. | Opt. | 150 @ 3400 | 282 @ 2000 | NA | — | — |
| E-250 Club Wagon..... | Opt. | NA | 157 @ 3400 | 287 @ 1800 | NA | — | — |
| E-250 Club Wagon..... | NA | Opt. | NA | NA | NA | — | — |
| E-350 | Opt. | NA | 157 @ 3400 | 287 @ 1800 | NA | — | — |
| E-350 | NA | Opt. | NA | NA | NA | — | — |

(1) 5.8L (351 CID) 4V V-8 to replace 5.8L (351 CID) 2V V-8 in automatic transmission applications under 8500 lbs. GVWR later in the year. For further application information, refer to the Engine Driveline Availability charts in this section of the Light Truck Facts Book.

AVAILABILITY/POWER RATINGS — CONT'D

5.8L 4-V — Engine

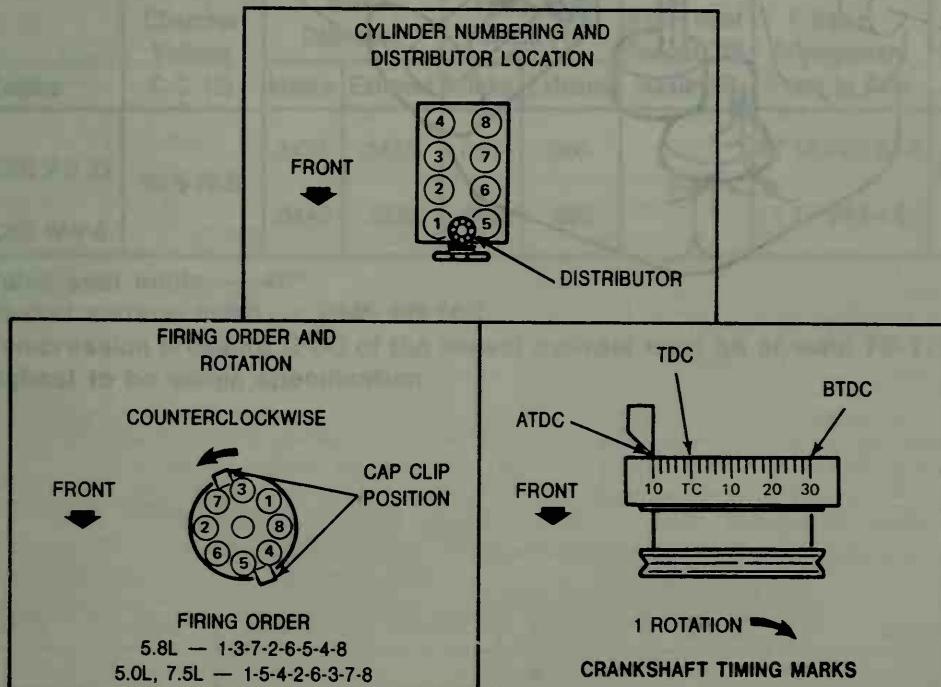
| Availability(1) | 49 States | High Alt. | Engine Ratings | | Calif. | Engine Ratings | |
|--|-----------|-----------|------------------|--------------------|--------|------------------|--------------------|
| | | | Horsepower @ RPM | Torque lb-ft @ RPM | | Horsepower @ RPM | Torque lb-ft @ RPM |
| F-150 4x2..... | Opt. | Opt. | 210 @ 4000 | 304 @ 2800 | Opt. | NA | NA |
| F-250 4x2 Under 8500 lbs. GVWR..... | Opt. | Opt. | 210 @ 4000 | 304 @ 2800 | NA | — | — |
| F-150 4x4..... | Opt. | Opt. | 210 @ 4000 | 304 @ 2800 | Opt. | NA | NA |
| F-250 4x4 Under 8500 lbs. GVWR..... | Opt. | Opt. | 210 @ 4000 | 304 @ 2800 | NA | — | — |
| E-150 | Opt. | Opt. | 210 @ 4000 | 304 @ 2800 | Opt. | NA | NA |
| E-250..... | Opt. | Opt. | 210 @ 4000 | 304 @ 2800 | NA | — | — |
| Bronco | Opt. | Opt. | 210 @ 4000 | 304 @ 2800 | Opt. | NA | NA |

(1) 5.8L (351 CID) 4V V-8 to replace 5.8L (351 CID) 2V V-8 in automatic transmission applications under 8500 lbs. GVWR later in the year. For further application information, refer to the Engine Driveline Availability charts in this section of the Light Truck Facts Book.

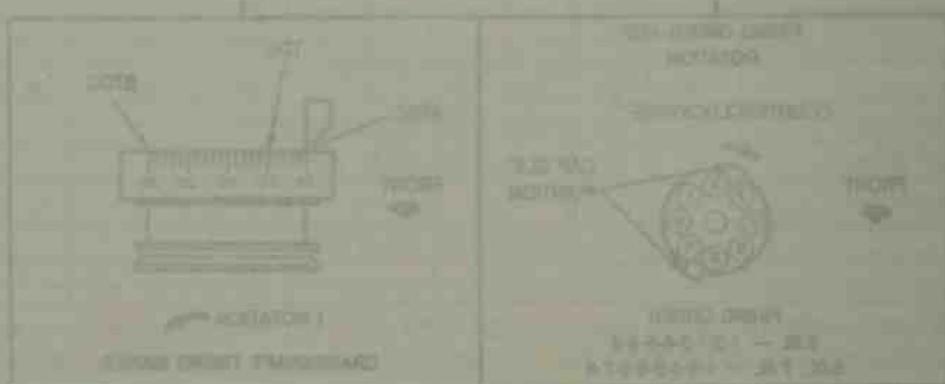
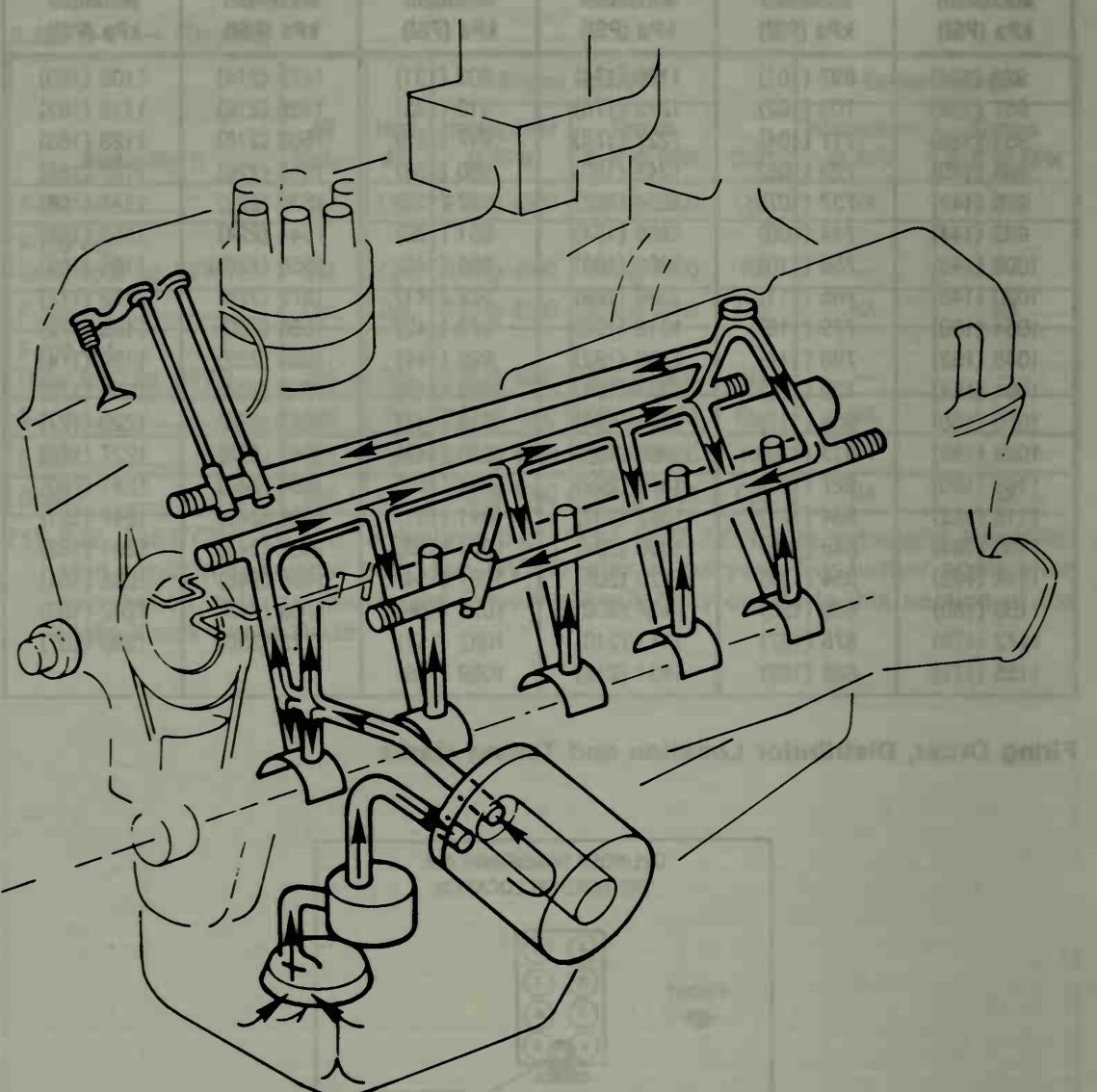
COMPRESSION TEST PERCENTAGES

| Maximum kPa (PSI) | Minimum kPa (PSI) | Maximum kPa (PSI) | Minimum kPa (PSI) | Maximum kPa (PSI) | Minimum kPa (PSI) |
|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|
| 923 (134) | 697 (101) | 1199 (174) | 903 (131) | 1475 (214) | 1103 (160) |
| 937 (136) | 703 (102) | 1213 (176) | 910 (132) | 1489 (216) | 1116 (162) |
| 951 (138) | 717 (104) | 1227 (178) | 917 (133) | 1503 (218) | 1123 (163) |
| 965 (140) | 723 (105) | 1241 (180) | 930 (135) | 1516 (220) | 1137 (165) |
| 979 (142) | 737 (107) | 1254 (182) | 937 (136) | 1530 (222) | 1144 (166) |
| 992 (144) | 744 (108) | 1268 (184) | 951 (138) | 1544 (224) | 1158 (168) |
| 1006 (146) | 758 (110) | 1282 (186) | 965 (140) | 1558 (226) | 1165 (169) |
| 1020 (148) | 765 (111) | 1296 (188) | 972 (141) | 1572 (228) | 1179 (171) |
| 1034 (150) | 779 (113) | 1310 (190) | 979 (142) | 1585 (230) | 1185 (172) |
| 1048 (152) | 786 (114) | 1323 (192) | 992 (144) | 1599 (232) | 1199 (174) |
| 1061 (154) | 792 (115) | 1337 (194) | 999 (145) | 1613 (234) | 1206 (175) |
| 1075 (156) | 806 (117) | 1351 (196) | 1013 (147) | 1627 (236) | 1220 (177) |
| 1089 (158) | 813 (118) | 1365 (198) | 1020 (148) | 1641 (238) | 1227 (178) |
| 1103 (160) | 827 (120) | 1379 (200) | 1034 (150) | 1654 (240) | 1241 (180) |
| 1116 (162) | 834 (121) | 1392 (202) | 1041 (151) | 1668 (242) | 1247 (181) |
| 1130 (164) | 848 (123) | 1406 (204) | 1054 (153) | 1682 (244) | 1261 (183) |
| 1144 (166) | 854 (124) | 1420 (206) | 1061 (154) | 1696 (246) | 1268 (184) |
| 1158 (168) | 868 (126) | 1434 (208) | 1075 (156) | 1709 (248) | 1282 (186) |
| 1172 (170) | 875 (127) | 1447 (210) | 1082 (157) | 1723 (250) | 1289 (187) |
| 1185 (172) | 889 (129) | 1461 (212) | 1089 (158) | | |

Firing Order, Distributor Location and Timing Marks



OIL FLOW



SERVICE SPECIFICATIONS**General Specifications**

| Engine | Bore and Stroke | Firing Order | Oil Pressure Hot @ 2000 RPM | | Engine Type and Number of Cylinders | Belt Tension — (lbs) (1) |
|-----------------------------------|-----------------|--------------|-----------------------------|---------|-------------------------------------|--------------------------|
| | | | kPa | (PSI) | | |
| 5.0L (302 CID) V-8 2-V and EFI | 4.00 x 3.00 | 15426378 | 275-413 | (40-60) | O.H.V. V-8 | — |
| 5.8L (351 CID) W-V-8 | 4.00 x 3.50 | 13726548 | 275-448 | (40-65) | O.H.V. V-8 | — |

| Belt Size | Newly Installed (a) | | | Used Over 10 Min. | |
|-----------------|---------------------|-----------|-------------|-------------------|--|
| | Kg | (lbs) | Kg | (lbs) | |
| All except 1/4" | 54.43-72.57 | (120-160) | 34.02-54.43 | (75-120 (d)) | |
| 1/4" Only | 22.68-36.28 | (50-80) | 18.14-27.21 | (40-60 (c)) | |

- (a) Tension measured immediately after belt is installed and before it is stretched or seats in pulley grooves.
 (b) If less than 40.82 Kg (90 lbs.) readjust to 40.82-54.43 Kg (90-120 lbs.)
 (c) If less than 18.14 Kg (40 lbs.) readjust to 18.14-27.21 Kg (40-60 lbs.)
 (d) If less than 34.02 Kg (75 lbs.) readjust to 40.82-54.43 Kg (90-120 lbs.)

Cylinder Head

| Engine | Combustion Chamber Volume C.C. (3) | Valve Guide Bore Diameter | | Valve Seat Width (1) | | Valve Seat Runout TIR Maximum | Valve Arrangement Front to Rear | Gasket Surface Flatness (2) |
|-----------------------|------------------------------------|---------------------------|---------|----------------------|---------|-------------------------------|---------------------------------|-----------------------------|
| | | Intake | Exhaust | Intake | Exhaust | | | |
| 5.0L (302 CID) V-8 2V | .67.5-70.5 | .3433- | .3433- | .060- | .060- | .002 | RT I-E-I-E-I-E-I-E | .003 in any 6 in. |
| 5.8L (351 CID) W-V-8 | | .3443 | .3443 | .080 | .080 | | LT E-I-E-I-E-I-E-I | .006 overall |

(1) Valve seat angle — 45°

(2) Gasket surface finish — RMS 60-150.

(3) Compression pressure (PSI) of the lowest cylinder must be at least 75-1/2 of the highest to be within specification.

SERVICE SPECIFICATIONS — CONT'D

Valve Rocker Arm Shaft, Push Rods and Tappets

| Engine | Rocker Arm Lift Ratio to 1 | Push Rod Runout TIR Maximum | Valve Tappet or Lifter | | | Collapsed Tapped Gap (Clearance) | |
|--------------------------------------|--|---|------------------------|-----------------------------|--|-------------------------------------|-----------|
| | | | Standard Diameter | Clearance to Bore (1) | Hydraulic Lifter Leakdown Rate (2) | | |
| 5.0L 2-V and EFI (302 CID) V-8 | 1.61 | .015 | .8740-.8745 | .0007-.0027 | 10 to 50 seconds for 1/16 travel | .071-.193 | .096-.165 |
| 5.8L (351 CID) W-V-8 | 1.61 | .015 | .8740-.8745 | .0007-.0027 | 10 to 50 seconds for 1/16 travel | .098-.198 | .123-.173 |

(1) Service limit .005.

(2) Time required for plunger to leakdown .0625 in. under load of 50 lbs. using leakdown fluid in tappet.

Valve Springs

| Engine | Valve Spring Compression Pressure (lbs) @ Specified Height | | Valve Spring Free Length (Approximate) | | Valve Spring Assembled Height | | Valve Spring Out of Square |
|-----------------------------------|--|--------------------------------|--|---------|-------------------------------------|--------------------|----------------------------------|
| | Intake (1) | Exhaust | Intake | Exhaust | Intake | Exhaust | Maximum |
| 5.0L (302 CID) V-8 2-V and EFI | 74-82 @ 1.78 196-212 @ 1.36 | 76-84 @ 1.60 190-210 @ 1.20 | 2.04 | 1.85 | 1-43/64 1-45/64 | 1-37/64 1-39/64 | 5/64 (.078) |
| 5.8L (351 CID) W-V-8 | 74-82 @ 1.78 190-210 @ 1.36 | 76-84 @ 1.60 190-210 @ 1.20 | 2.04 | 1.85 | 1-49/64 1-51/64 | 1-37/64 1-39/64 | 5/64 (.078) |

(1) Service limit — 10% loss pressure.

Valves

| Engine | Valve Stem to Guide Clearance (1) | | Valve Head Diameter (2) | | Valve Face Runout Maximum | |
|-----------------------------------|--------------------------------------|-------------|----------------------------|----------------------------|------------------------------|--|
| | Intake | Exhaust | Intake | Exhaust | | |
| 5.0L (302 CID) V-8 2-V and EFI | .0010-.0027 | .0015-.0032 | 1.690-1.694 1.770-1.794 | 1.439-1.463 1.453-1.468 | | |
| 5.8L (351 CID) W-V-8 | | | | | .002 | |

(1) Service clearance — .0055.

(2) Valve face angle — 44°.

| Engine | Valve Stem Diameter | | | | | |
|---|---------------------|-------------|---------------|-------------|---------------|-------------|
| | Standard | | .015 Oversize | | .030 Oversize | |
| | Intake | Exhaust | Intake | Exhaust | Intake | Exhaust |
| 5.0L (302 CID) V-8 2-V and EFI 5.8L (351 CID) W-V-8 | .3416-.3423 | .3411-.3418 | .3566-.3573 | .3561-.3568 | .3716-.3723 | .3711-.3718 |

SERVICE SPECIFICATIONS — CONT'D

Camshaft

| Engine | Lobe Lift (1) | | Camshaft End Play | | Camshaft Journal to Bearing Clearance (2) |
|-----------------------------------|---------------|---------|-------------------|------------|---|
| | Intake | Exhaust | End Play | Wear Limit | |
| 5.0L (302 CID) V-8 2-V and EFI | .2375 | .2474 | .001-.007 | .009 | .001-.003 |
| 5.8L (351 CID) W-V-8 | .2600 | .2600 | .001-.007 | .009 | .001-.003 |

(1) Maximum allowable lift loss — .005.

(2) Service limit — .006 maximum.

Camshaft Drive

| Engine | Camshaft Journal Diameter — Standard (1) | | | | | Camshaft Bearing Inside Diameter | | | | | Camshaft Front Bearing Location (2) | Timing Chain Deflection Inches Maximum |
|-----------------------------------|--|--------|--------|--------|--------|----------------------------------|--------|--------|--------|--------|-------------------------------------|--|
| | No. 1 | No. 2 | No. 3 | No. 4 | No. 5 | No. 1 | No. 2 | No. 3 | No. 4 | No. 5 | | |
| 5.0L (302 CID) V-8 2-V and EFI | 2.0805 | 2.0655 | 2.0505 | 2.0355 | 2.0205 | 2.0825 | 2.0675 | 2.0525 | 2.0375 | 2.0225 | .005-.020 | .500 |
| 5.8L (351 CID) W-V-8 | 2.0815 | 2.0665 | 2.0515 | 2.0365 | 2.0215 | 2.0835 | 2.0685 | 2.0535 | 2.0385 | 2.0235 | | |

(1) Camshaft journal runout — .005 TIR maximum.

(2) Distance in inches that front edge of the bearing is installed below the front face of the cylinder block.

Cylinder Block

| Engine | Cylinder Bore Diameter (1) | Main Bearing Bore Diameter (2) | Distributor Shaft Bearing Bore Diameter | Head Gasket Surface Flatness | Head Gasket Surface Finish | Tappet Bore Diameter |
|-----------------------------------|----------------------------|--------------------------------|---|-----------------------------------|----------------------------|----------------------|
| 5.0L (302 CID) V-8 2-V and EFI | 4.0004-4.0052 | 2.4412-2.4420 | .4525-.4541 | .003 in any 6 in. .006 overall | RMS 60-150 | .8752-.8767 |
| 5.8L (351 CID) W-V-8 | 4.0000-4.0048 | 3.1922-3.1930 | .5155-.5170 | .003 in any 6 in. .006 overall | RMS 60-150 | .8752-.8767 |

(1) Maximum out-of-round — .0015, Service limit — .005, Maximum taper service limit — .010, Cylinder bore surface finish — RMS 18-38, Bore tapes service limit — .010.

(2) Crankshaft to rear face of block runout. TIR maximum .005.

SERVICE SPECIFICATIONS — CONT'D

Crankshaft and Flywheel

| Engine | Main Bearing Journal Diameter (1) | Main Bearing Journal Runout TIR Maximum (2) | Main Bearing Thrust Face Runout TIR Maximum | Main Bearing Journal Taper Maximum Per Inch | Thrust Bearing Journal Length | Main and Rod Bearing Journal Finish RMS Maximum | Main Bearing Thrust Face Finish RMS Maximum |
|--------------------------------------|-----------------------------------|---|---|---|-------------------------------|---|---|
| 5.0L (302 CID) V-8 2-V and EFI | 2.2482- 2.2490 | .002 | .001 | .0005 | 1.137- 1.139 | 12 | 25 Front — 20 Rear |
| 5.8L (351 CID) W-V-8 | 2.9994- 3.0002 | .002 | .001 | .0005 | 1.137- 1.139 | 12 | 25 Front — 20 Rear |

(1) Maximum out-of-round — .0006.

(2) Service limit — .005.

| Engine Assembled | Connecting Rod Journal Diameter (1) | Connecting Rod Journal Taper Per Inch Maximum | Crankshaft Free End Play (2) | Flywheel Clutch Face Run-Out |
|-----------------------------------|-------------------------------------|---|------------------------------|------------------------------|
| 5.0L (302 CID) V-8 2-V and EFI | 2.1228-2.1236 | .0006 | .004-.008 | 0.010 |
| 5.8L (351 CID) W-V-8 | 2.3103-2.3111 | .0006 | .004-.008 | 0.010 |

(1) Maximum out-of-round — .0006.

(2) Service limit — .012.

SERVICE SPECIFICATIONS — CONT'D

Crankshaft Bearings

| Engine | Connecting Rod Bearing to Crankshaft Clearance Selective Fit | | | Main Bearing to Crankshaft Clearance Selective Fit | | |
|-----------------------------------|--|-------------|---------------------------------|--|-------------|---------------------------------|
| | Desired | Allowable | Bearing Wall Thickness Std. (1) | Desired | Allowable | Bearing Wall Thickness Std. (1) |
| 5.0L (302 CID) V-8 2-V and EFI | .0008-.0015 | .0007-.0024 | .0572-.0577 | (2) | (3) | (4) |
| 5.8L (351 CID) W-V-8 | .0008-.0015 | .0008-.0025 | .0572-.0577 | .0008-.0015 | .0008-.0026 | .0957-.0960 |

(1) For .002 undersize add .001 to standard wall thickness.

(2) #1 Bearing — .0001-.0015. All others — .0005-.0015.

(3) #1 Bearing — .0001-.0020. All others — .0005-.0024.

(4) #1 Upper only .0961 — .0966. All others .0957-.0962.

Connecting Rod

| Engine | Piston Pin Bore or Bushing I.D. | Rod Bearing Bore I.D. (1) | Rod Length Center to Center | Connecting Rod Alignment Maximum Total Difference | | Rod to Crankshaft Assembled Side Clearance (3) |
|-----------------------------------|---------------------------------|---------------------------|-----------------------------|---|----------|--|
| | | | | Twist (2) | Bend (2) | |
| 5.0L (302 CID) V-8 2-V and EFI | .9096-.9112 | 2.2390-2.2398 | 5.0885-5.0915 | .024 | .012 | .010-.020 |
| 5.8L (351 CID) W-V-8 | .9096-.9112 | 2.4265-2.4273 | 5.9545-5.9575 | .024 | .012 | .010-.020 |

(1) Connecting rod bearing bore maximum out-of-round — .0004.

(2) Pin bushing and crankshaft bore must be parallel and in same vertical plane within specified total difference when measured at the ends of an 8-inch long bar, 4 inches on each side of rod centerline.

(3) Service limit — .023.

Piston

| Engine | Diameter (1) | | | Piston to Bore Clearance Selective Fit | Piston Pin Bore Diameter | Ring Groove Width Compression | | |
|-----------------------------------|--------------|------------|---------------|--|--------------------------|-------------------------------|--------|-------|
| | Coded Red | Coded Blue | .003 Oversize | | | Top | Bottom | Oil |
| 5.0L (302 CID) V-8 2-V and EFI | 3.9984- | 3.996- | 4.0008- | .0018- | .9123- | .080- | .080- | .188- |
| 5.8L (351 CID) W-V-8 | 3.9990 | 4.000 | 4.0014 | .0026 | .9126 | .081 | .081 | .189 |
| | 3.9978- | 3.9990- | 4.0002- | .0018- | .9124- | .080- | .080- | .188- |
| | 3.9984 | 3.9996 | 4.0008 | .0026 | .9127 | .081 | .081 | .189 |

(1) Measured at the piston pin bore centerline at 90° to the pin.

Powertrain — Gasoline Engines — 5.0L/5.8L V-8

SERVICE SPECIFICATIONS — CONT'D

Piston Pin

| Engine | Length | Diameter | | | To Piston Pin Bore Clearance (1) | To Connecting Rod Bushing Clearance |
|-----------------------------------|-------------|-------------|---------------|---------------|----------------------------------|-------------------------------------|
| | | Standard | .001 Oversize | .002 Oversize | | |
| 5.0L (302 CID) V-8 2-V and EFI | 3.010-3.040 | .9119-.9124 | .9130-.9133 | .9140-.9143 | .0002-.0004 | Interference Fit |
| 5.8L (351 CID) W-V-8 | 3.010-3.040 | .9119-.9124 | .9130-.9133 | .9140-.9143 | .0003-.0005 | Interference Fit |

(1) Selective fit.

Piston Rings

| Engine | Ring Width | | Side Clearance (1) | | | Ring Gap | | |
|--|-----------------|--------------------|--------------------|--------------------|------|-----------------|--------------------|-----------|
| | Top Compression | Bottom Compression | Top Compression | Bottom Compression | Oil | Top Compression | Bottom Compression | Oil (2) |
| 5.0L (302 CID) V-8 2-V and EFI 5.8L (351 CID) W-V-8 | .0770-.0780 | .0770-.0780 | | .002-.004 | Snug | .010-.020 | .010-.020 | .015-.055 |

(1) Service limit — .002 maximum increase in clearance.

(2) Steel rail.

Oil Pump and Oil Capacity

| Engine | Relief Valve Spring Pressure Lbs. @ Specified Length | Driveshaft to Housing Clearance | Relief Valve to Housing Clearance | Rotor Assembly End Clearance | Outer Race to Housing Clearance | Engine Oil Capacity (1) | | |
|-----------------------------------|--|---------------------------------|-----------------------------------|------------------------------|---------------------------------|-------------------------|-----------------|--------|
| | | | | | | U.S. Quarts | Imperial Quarts | Litres |
| 5.0L (302 CID) V-8 2-V and EFI | 10.6-12.2 @ 1.74 | .0015-.0030 | .0015-.0030 | .004 Maximum | .001-.013 | 5 | 4.2 | 4.7 |
| 5.8L (351 CID) V-8 | 18.2-20.2 @ 2.49 | .0015-.0030 | .0015-.0030 | .004 Maximum | .001-.003 | 5 | 4.2 | 4.7 |

(1) Add 1 U.S. quart (or equivalent in imperial quarts or litres) when replacing filter.

Fuel Pump — Mechanical

| Engine | Static Pressure (PSI) (1) | Volume Flow — Minimum (1)(2) | Eccentric Total Lift — Inches |
|--|---------------------------|------------------------------|-------------------------------|
| 5.0L (302 CID) V-8/2-V 5.8L (351 CID) W-V-8 | 6.0-8.0 | 1 pint in 20 seconds | .690-.710 |

(1) On the engine with temperatures normalized and at normal curb idle speed, in neutral.

(2) The inside diameter of the smallest passage in the test flow circuit must not be less than .220.

TORQUE SPECIFICATIONS**General Specifications**

NOTE: All values in N·m (ft-lbs), unless otherwise noted. Oil threads with engine oil unless the threads require oil or water-resistant sealer. The standard torque limits listed below are applicable for all functions not listed in the special torque chart.

| | | | | | | | | |
|---------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|---------------------|
| 1/4-20 | 5/16-18 | 5/16-24 | 3/8-16 | 3/8-24 | 7/16-14 | 7/16-20 | 1/2-13 | 9/16-18 |
| 8-12 (6-9) | 17-24 (12-18) | 19-27 (14-20) | 30-43 (22-32) | 37-51 (27-38) | 61-77 (45-57) | 55-81 (40-60) | 75-81 (55-60) | 116-162 (85-120) |

Pipe Threads

| 1/8-27 | 1/4-18 | 3/8-18 | 1/2-14 |
|------------|---------------|---------------|---------------|
| 7-11 (5-8) | 17-24 (12-18) | 30-44 (22-33) | 34-47 (25-35) |

Specific Applications

| Item | Torque | |
|--|------------------|---------------------|
| | N·m | (Ft-Lb) |
| Camshaft Sprocket — Gear to Camshaft | 55-61 | (40-45) |
| Camshaft Thrust Plate to Cylinder Block | 13-16 | (9-12) |
| Connecting Rod Nut — 5.0L (302 CID) V-8, 2-V and EFI — 5.8L (351 CID) W-V-8 | 26-32 55-61 | (19-24) (40-45) |
| Cylinder Front Cover | 17-24 | (12-18) |
| Cylinder Head Bolts | (1)(2) | |
| Damper to Crankshaft | 95-122 | (70-90) |
| EGR Valve to Carburetor Spacer or Intake Manifold | 17-24 | (12-18) |
| Fuel Pump to Cylinder Block or Front Cover | 26-36 | (19-27) |
| Flywheel to Crankshaft | 102-115 | (75-85) |
| Main Bearing Cap Bolts — 5.0L (302 CID) V-8 — 5.8L (351 CID) W-V-8 | 82-94 129-142 | (60-70) (95-105) |
| Manifold to Cylinder Head — Intake | 32-33 | (23-25) |
| Manifold to Cylinder Head — Exhaust | 25-32 | (18-24) |
| Intake Manifold Vacuum Fittings — Aluminum — Cast Iron | 8-13 32-37 | (6-10) (23-28) |
| Intake Manifold Pipe Fittings — Aluminum — Cast Iron | 17-24 32-37 | (12-18) (23-28) |
| Oil Inlet Tube to Main Bearing Cap | 30-43 | (22-32) |
| Thermactor Pump Bracket to Cylinder Block | 44-67 | (30-45) |

TORQUE SPECIFICATIONS — CONT'D**Specific Applications — Cont'd**

| Item | Torque | |
|---|---|---------|
| | N·m | (Ft-Lb) |
| Carburetor Mounting Stud | 7-13 | (5-10) |
| Distributor Clamp Down | 24-32 | (17-25) |
| Oil Filter Insert to Cylinder Block/Adaptor | 28-40 | (20-30) |
| Oil Filter to Adaptor or Cylinder Block | 1/2 turn after gasket contacts sealing surface — oiled gasket | |
| Oil Inlet Tube Pump | 14-20 | (10-15) |
| Oil Pan Drain Plug | 21-33 | (15-25) |
| Oil Pan to Cylinder Block | 13-14 | (9-11) |
| Oil Pump to Cylinder Block | 30-43 | (22-32) |
| Pulley to Damper Bolt | 48-67 | (35-50) |
| Rocker Arm Stud/Bolt to Cylinder Head | 25-33 | (18-25) |
| Spark Plug to Cylinder Head | 14-20 | (10-15) |

TORQUE SPECIFICATIONS — CONT'D

| Item | Torque | |
|---|--------|-----------------|
| | N·m | Ft-Lb |
| Valve Rocker Arm Cover | 4-6 | (3-5) |
| Water Outlet Housing | 13-16 | (9-12) |
| Water Pump to Block/Front Cover | 17-24 | (12-18) |
| Alternator Bracket to Cylinder Block — Bolt | 17-24 | (12-18) |
| Alternator Adjusting Arm to Alternator Bolt | 33-60 | (24-40) |
| Thermactor Pump Pivot Bolt | 30-43 | (22-32) |
| Thermactor Pump Adjusting Arm to Pump | 30-43 | (22-32) |
| Thermactor Pump Pulley to Pump Hub | 17-24 | (150-220 in-lb) |
| Fuel Filter to Carburetor | 10-11 | (80-100 in-lb) |
| Carburetor Attaching Nuts | 17-20 | (12-15) |

- (1) 5.0L (302 CID) V-8 — Torque in steps: first to 75-88 N·m (55-65 ft-lb) then to 88-97 N·m (65-72 ft-lb)
 (2) 5.8L (351 CID) W-V-8 — Torque in steps: first to 115 N·m (85 ft-lb) then to 129 N·m (95 ft-lb), final to 143-151 N·m (105-112 ft-lb)

Ignition System

| Item | Torque | |
|--|----------|-----------------|
| | N·m | As Noted |
| Distributor Holddown Bolt | 23-34 | 17-25 ft-lb |
| Distributor Adapter to Distributor Base | 2-2.5 | 18-23 in-lb |
| Stator Assy. Lower Plate Assy. to Distributor Base | 1.7 min. | 15 in-lb (min.) |
| Diaphragm Assembly to Distributor Base | 1.7 min. | 15 in-lb (min.) |
| Spark Plug to Cylinder Head 2.8L | 7-20 | 10-15 ft-lb |
| 4.9L | 20-27 | 15-20 ft-lb |
| 5.0L, 5.8L, 7.5L | 9-20 | 7-15 ft-lb |

TORQUE SPECIFICATIONS — CONT'D**Holley 4180-C 4V Carburetor**

| Item | N·m | In-Lb |
|--|-----------|---------------|
| Carburetor to Manifold Nuts | 19-27 | 14-20 (ft-lb) |
| Accelerator Pump Nozzle to Main Body Retaining Screw | 3-4.8 | 27-43 |
| Secondary Diaphragm Cover Attaching Screws | 1.5-1.9 | 13-17 |
| Secondary Diaphragm Housing Retaining Screws | 2.3-3.5 | 20-31 |
| Choke Plate Screws | .7-.9 | 6-8 |
| Choke Thermostat Nut | 1.8-2.3 | 16-20 |
| Choke Housing Screws | 2.3-3.4 | 20-30 |
| Choke Thermostatic Housing Screws | 1.8-2.0 | 16-18 |
| Throttle Body to Main Body Attaching Screws | 4.4-5.9 | 39-52 |
| Accelerator Pump Diaphragm Cover Screws | 1.1-1.6 | 10-14 |
| Fuel Inlet Fitting | 30-35 | 22-26 (lb-ft) |
| Fuel Level Sight Plug | 2.2-2.7 | 19-24 |
| Power Valve | 12.2-16.3 | 9-12 (lb-ft) |
| Jets to Metering Block | 2.0-2.5 | 18-20 |
| Fuel Bowl Retaining Screws | 5.7-6.8 | 50-60 |

TORQUE SPECIFICATIONS — CONT'D

Model 2150 2V Carburetor

| Torque Specifications | N·m | in-lb |
|---|-----------|---------------|
| Air Horn to Main Body | 3.06-4.18 | 27-37 |
| Fuel Inlet Valve Seat | 5.08 | 45 |
| Accelerator Pump Diaphragm Cover | 1.47-2.25 | 13-20 |
| Choke Pulldown Diaphragm | 2.26-3.38 | 20-30 |
| Aneroid Assembly to Main Body | 2.26-3.38 | 20-30 |
| Fast Idle Lever Retaining Nut | 2.26-3.16 | 20-28 |
| Enrichment Valve | 12-13 | 100-120 |
| Enrichment Valve Cover | 1.47-2.25 | 13-20 |
| Accelerator Pump Discharge Screw | 7.35-9.60 | 65-85 |
| Main Jets | 3.16 | 28 |
| Choke Housing Retaining Screw | 1.47-2.25 | 13-20 |
| Choke Plate Screws | .46-1.01 | 4-9 |
| Carburetor Body Flange to Intake Manifold | 20-21 | 14-16 (ft-lb) |
| Air Cleaner Anchor Screw | 7-9 | 5-7 (ft-lb) |
| Air Cleaner Wing Nut (Steel) | 1.70-2.82 | 15-25 |
| Air Cleaner Wing Nut (Plastic) | 2.83-3.95 | 25-35 |
| Temperature Compensated Pump Valve Cover | 2.14-2.71 | 19-24 |
| Integral Attitude Compensator | 2.26-3.39 | 20-30 |
| Feedback Duty Cycle Solenoid | 2.26-3.39 | 20-30 |
| Throttle Position Sensor | 1.24-1.81 | 11-16 |
| Feedback Booster Venturi Screw | 7.34-9.6 | 65-85 |
| Temperature Compensated Pump | 2.14-2.71 | 19-24 |

AVAILABILITY/POWER RATINGS

| Availability | 49 States | High Alt. | Engine Ratings | | Calif. | Engine Ratings | |
|---------------------------------------|-----------|-----------|------------------|--------------------|--------|------------------|--------------------|
| | | | Horsepower @ RPM | Torque lb-ft @ RPM | | Horsepower @ RPM | Torque lb-ft @ RPM |
| F-250 HD 4x2 Over 8500 lbs. GVWR..... | Opt. | Opt. | 226 @ 4400 | 365 @ 2800 | Opt. | 221 @ 4200 | 361 @ 2600 |
| F-350 4x2..... | Opt. | Opt. | 226 @ 4400 | 365 @ 2800 | Opt. | 221 @ 4200 | 361 @ 2600 |
| F-250 HD 4x4 Over 8500 lbs. GVWR..... | Opt. | Opt. | 226 @ 4400 | 365 @ 2800 | Opt. | 221 @ 4200 | 361 @ 2600 |
| F-350 4x4..... | Opt. | Opt. | 226 @ 4400 | 365 @ 2800 | Opt. | 221 @ 4200 | 361 @ 2600 |
| E-250 Club Wagon, Super Wagon..... | Opt. | Opt. | 226 @ 4400 | 365 @ 2800 | Opt. | 221 @ 4200 | 361 @ 2600 |
| E-350 | Opt. | Opt. | 226 @ 4400 | 365 @ 2800 | Opt. | 221 @ 4200 | 361 @ 2600 |

Compression Test Percentages

| Maximum kPa (PSI) | Minimum kPa (PSI) | Maximum kPa (PSI) | Minimum kPa (PSI) | Maximum kPa (PSI) | Minimum kPa (PSI) |
|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|
| 923 (134) | 697 (101) | 1199 (174) | 903 (131) | 1475 (214) | 1103 (160) |
| 937 (136) | 703 (102) | 1213 (176) | 910 (132) | 1489 (216) | 1116 (162) |
| 951 (138) | 717 (104) | 1227 (178) | 917 (133) | 1503 (218) | 1123 (163) |
| 965 (140) | 723 (105) | 1241 (180) | 930 (135) | 1516 (220) | 1137 (165) |
| 979 (142) | 737 (107) | 1254 (182) | 937 (136) | 1530 (222) | 1144 (166) |
| 992 (144) | 744 (108) | 1268 (184) | 951 (138) | 1544 (224) | 1158 (168) |
| 1006 (146) | 758 (110) | 1282 (186) | 965 (140) | 1558 (226) | 1165 (169) |
| 1020 (148) | 765 (111) | 1296 (188) | 972 (141) | 1572 (228) | 1179 (171) |
| 1034 (150) | 779 (113) | 1310 (190) | 979 (142) | 1585 (230) | 1185 (172) |
| 1048 (152) | 786 (114) | 1323 (192) | 992 (144) | 1599 (232) | 1199 (174) |
| 1061 (154) | 792 (115) | 1337 (194) | 999 (145) | 1613 (234) | 1206 (175) |
| 1075 (156) | 806 (117) | 1351 (196) | 1013 (147) | 1627 (236) | 1220 (177) |
| 1089 (158) | 813 (118) | 1365 (198) | 1020 (148) | 1641 (238) | 1227 (178) |
| 1103 (160) | 827 (120) | 1379 (200) | 1034 (150) | 1654 (240) | 1241 (180) |
| 1116 (162) | 834 (121) | 1392 (202) | 1041 (151) | 1668 (242) | 1247 (181) |
| 1130 (164) | 848 (123) | 1406 (204) | 1054 (153) | 1682 (244) | 1261 (183) |
| 1144 (166) | 854 (124) | 1420 (206) | 1061 (154) | 1696 (246) | 1268 (184) |
| 1158 (168) | 868 (126) | 1434 (208) | 1075 (156) | 1709 (248) | 1282 (186) |
| 1172 (170) | 875 (127) | 1447 (210) | 1082 (157) | 1723 (250) | 1289 (187) |
| 1185 (172) | 889 (129) | 1461 (212) | 1089 (158) | | |

FIRING ORDER, DISTRIBUTOR LOCATION AND TIMING MARKS

W04R J10

CYLINDER NUMBERING AND DISTRIBUTOR LOCATION

FIRING ORDER AND ROTATION

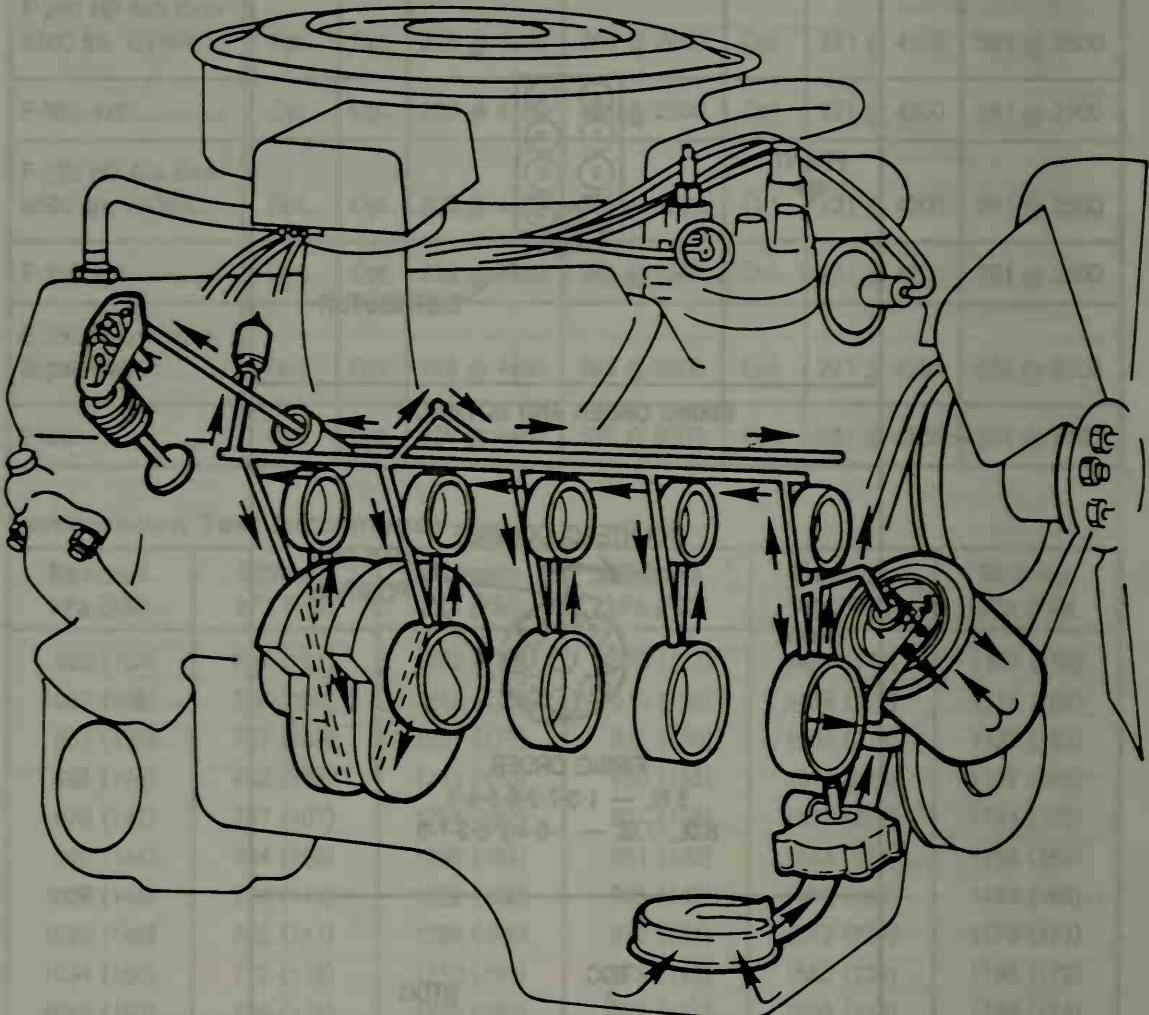
FIRING ORDER

5.8L — 1-3-7-2-6-5-4-8
5.0L, 7.5L — 1-5-4-2-6-3-7-8

CRANKSHAFT TIMING MARKS

5.0L, 5.8L, 7.5L

OIL FLOW



SERVICE SPECIFICATIONS

General Specifications

| Bore and Stroke | Firing Order | Oil Pressure Hot @ 2000 RPM kPa (PSI) | Engine Type and Number of Cylinder |
|-----------------|--------------|---|--|
| 4.36 x 3.85 | 15426378 | 276-448 (40-65) | O.H.V. V-8 |

Belt Tension

| Belt Size | Newly Installed(a) | | Used Over 10 Min. | |
|-----------------|--------------------|---------|-------------------|-----------|
| | Kg | (lb) | Kg | (lb) |
| All except 1/4" | 55-72 | 120-160 | 34-54 | 75-120(b) |
| 1/4" Only | 23-36 | 50-80 | 18-27 | 40-60(c) |

- (a) Tension measured immediately after belt is installed and before it is stretched or seats in pulley grooves (all belts).
- (b) If less than 34 Kg (75 lb), readjust to 41-54 Kg (90-120 lb).
- (c) If less than 18 Kg (40 lb), readjust to 18-27 Kg (40-60 lb).

Cylinder Head

| Combustion Chamber Volume C.C(3) | Valve Guide Bore Diameter | | Valve Seat Width(1) | | Valve Seat Runout TIR Maximum | Valve Arrangement Front to Rear | Gasket Surface Flatness (2) |
|---|---------------------------------|-------------|------------------------|-----------|-------------------------------------|--|--------------------------------------|
| | Intake | Exhaust | Intake | Exhaust | | | |
| 94.7-97.7 | .3433-.3443 | .3433-.3443 | .060-.080 | .060-.080 | .002 | RT I-E-I-E-I-E-I-E LT E-I-E-I-E-I-E-I | .003 in any 6 in. .006 overall |

- (1) Valve seat angle — 45°
- (2) Gasket surface finish — RMS 60-150.
- (3) Compression pressure (PSI) of the lowest cylinder must be at least 75% of the highest to be within specification.

Valve Rocker Arm Shaft, Push Rods and Tappets

| Rocker Arm Lift Ratio to 1 | Push Rod Runout TIR Maximum | Valve Tappet or Lifter | | | Collapsed Tappet Gap (Clearance) | |
|-------------------------------|--------------------------------|------------------------|-------------------------|--------------------------------------|-------------------------------------|-----------|
| | | Standard Diameter | Clearance to Bore(1) | Hydraulic Lifter Leakdown Rate(2) | | |
| 1.73 | .015 | .8740-.8745 | .0007-.0027 | 10 to 50 seconds for 1/16 travel | .075-.175 | .100-.150 |

- (1) Service limit — .005
- (2) Time required for plunger to leakdown .0625 in. under load of 50 lbs. using leakdown fluid in tappet.

SERVICE SPECIFICATIONS — CONT'D

Valve Springs

| Valve Spring Compression Pressure Lbs. @ Specified Height | | Valve Spring Free Length (Approximate) | | Valve Spring Assembled Height | | Valve Spring Out of Square |
|---|--------------------------------|--|---------|-------------------------------------|-----------------|----------------------------------|
| Intake(1) | Exhaust | Intake | Exhaust | Intake | Exhaust | Maximum |
| 76-84 @ 1.81 218-240 @ 1.33 | 76-84 @ 1.81 218-240 @ 1.33 | 2.06 | 2.06 | 1-51/64—1-53/64 | 1-51/64—1-53/64 | 5/64 (.078) |

(1) Service limit — 10% loss of pressure.

Valves

| Valve Stem to Guide Clearance(1) | | Valve Head Diameter(1) | | Valve Face Runout TIR Maximum |
|----------------------------------|-------------|------------------------|-------------|----------------------------------|
| Intake | Exhaust | Intake | Exhaust | |
| .0010-.0027 | .0010-.0027 | 2.075-2.090 | 1.646-1.661 | .002 |

(1) Service Clearance — .0055.

(2) Valve face angle — 44°.

Valves (Continued)

| Engine | Standard | | Valve Stem Diameter .015 Oversize | | .030 Oversize | |
|--------------------|-------------|-------------|--------------------------------------|-------------|---------------|-------------|
| | Intake | Exhaust | Intake | Exhaust | Intake | Exhaust |
| 7.5L (460 CID) V-8 | .3416-.3423 | .3416-.3423 | .3566-.3573 | .3566-.3573 | .3716-.3723 | .3716-.3723 |

SERVICE SPECIFICATIONS — CONT'D

Camshaft

| Lobe Life(1) | | Camshaft End Play | | Camshaft Journal to Bearing Clearance(2) |
|--------------|---------|-------------------|---------------|--|
| Intake | Exhaust | End Play | Service Limit | |
| .252 | .278 | .001-.006 | .009 | .001-.003 |

(1) Maximum allowable lift loss — .005.

(2) Service limit — .006.

Camshaft Drive

| Camshaft Journal Diameter — Standard(1) | | | | | Camshaft Bearing Inside Diameter | | | | | Camshaft Front Bearing Location(2) | Timing Chain Deflection Inches Maximum |
|---|-------------------|-------------------|-------------------|-------------------|----------------------------------|-------------------|-------------------|-------------------|-------------------|------------------------------------|--|
| No. 1 | No. 2 | No. 3 | No. 4 | No. 5 | No. 1 | No. 2 | No. 3 | No. 4 | No. 5 | | |
| 2.1238- 2.1248 | 2.1238- 2.1248 | 2.1238- 2.1248 | 2.1238- 2.1248 | 2.1238- 2.1248 | 2.1258- 2.1268 | 2.1258- 2.1268 | 2.1258- 2.1268 | 2.1258- 2.1268 | 2.1258- 2.1268 | .040-.060 | .500 |
| | | | | | | | | | | | |

(1) Camshaft journal runout — .005 TIR maximum.

(2) Distance in inches that front edge of the bearing is installed below the front face of the cylinder block.

Cylinder Block

| Cylinder Bore Diameter(1) | Main Bearing Bore Diameter | Distributor Shaft Bearing Bore Diameter | Head Gasket Surface Flatness | Head Gasket Surface Finish | Tappet Bore Diameter |
|---------------------------|----------------------------|---|-----------------------------------|----------------------------|----------------------|
| 4.3600-4.3636 | 3.1922-3.1934 | .5160-.5175 | .003 in any 6 in. .006 overall | RMS 90-150 | .8752-.8767 |

(1) Maximum out-of-round — .0015, Service limit — .005, Maximum taper service limit — .010, Cylinder bore surface finish RMS 18-38, Bore taper service limit — .010

SERVICE SPECIFICATIONS — CONT'D

Crankshaft and Flywheel

| Main Bearing Journal Diameter(1) | Main Bearing Journal Runout TIR Maximum(2) | Main Bearing Thrust Face Runout TIR Maximum | Main Bearing Journal Taper Maximum Per Inch | Thrust Bearing Journal Length | Main and Rod Bearing Journal Finish RMS Maximum | Main Bearing Thrust Face Finish RMS Maximum |
|----------------------------------|--|---|---|-------------------------------|---|---|
| 2.9994-3.0002 | .002 | .001 | .0005 | 1.124-1.126 | 12 | 25 Front — 23 Rear |

(1) Maximum out-of-round — .0006.

(2) Service limit — .005.

Crankshaft and Flywheel (Cont'd)

| Connecting Rod Journal Diameter(2) | Connecting Rod Journal Taper Per Inch Maximum | Crankshaft Free End Play(2) |
|------------------------------------|---|-----------------------------|
| 2.4992-2.5000 | .0006 | .004-.008 |

(1) Maximum out-of-round — .0006.

(2) Service limit — .012.

Crankshaft Bearings

| Connecting Rod Bearing to Crankshaft Clearance Selective Fit | | | Main Bearing to Crankshaft Clearance Selective Fit | | |
|--|-------------|--------------------------------|--|-------------|--------------------------------|
| Desired | Allowable | Bearing Wall Thickness Std.(1) | Desired | Allowable | Bearing Wall Thickness Std.(1) |
| .0008-.0015 | .0008-.0025 | .0625/.0756 | .0008-.0015 | .0008-.0026 | .0955-.0960 |

(1) For .002 undersize add .001 to standard wall thickness.

Connecting Rod

| Piston Pin Bore or Bushing I.D. | Rod Bearing Bore I.D.(1) | Rod Length Center to Center | Connecting Rod Alignment Maximum Total Difference | | Rod to Crankshaft Assembled Side Clearance(3) |
|---------------------------------|--------------------------|-----------------------------|---|---------|---|
| | | | Twist(2) | Bend(2) | |
| 1.0386-1.0393 | 2.6522-2.6530 | 6.6035-6.6065 | .024 | .012 | .010-.020 |

(1) Connecting rod bearing bore maximum out-of-round — .0004.

(2) Pin bushing and crankshaft bore must be parallel and in same vertical plane within specified total difference when measured at the ends of an 8-inch long bar, 4 inches on each side of rod centerline.

(3) Service limit — .023.

Piston

| Diameter(1) | | | Piston to Bore Clearance Selective Fit | Piston Pin Bore Diameter | Ring Groove Width Compression | | |
|---------------|---------------|---------------|--|--------------------------|-------------------------------|-------------|-----------|
| | | | | | Top | Bottom | Oil |
| Coded Red | Coded Blue | .003 Oversize | | | | | |
| 4.3585-4.3591 | 4.3597-4.3603 | 4.3609-4.3615 | .0022-.0030 | 1.0402-1.0405 | .0805-.0815 | .0805-.0815 | .188-.189 |

(1) Measured at the piston pin bore centerline at 90° to the pin.

SERVICE SPECIFICATIONS — CONT'D

Piston Pin

| Length | Diameter | | To Piston Pin Bore Clearance (1) | To Connecting Rod Bushing Clearance |
|-------------|---------------|---------------|-------------------------------------|--|
| | Standard | .001 Oversize | | |
| 3.290-3.320 | 1.0398-1.0403 | 1.0410-1.0413 | .0002-.0005 | Interference Fit |

(1) Selective Fit.

Piston Rings

| Ring Width Compression | | Side Clearance (1) | | | Ring Gap | | |
|---------------------------|-------------|--------------------|-------------|------|------------------------|-----------|-----------|
| | | Compression | | Oil | Compression (In gauge) | | Oil |
| Top | Bottom | Top | Bottom | | Top | Bottom | |
| .077-.078 | .0770-.0780 | .0025-.0045 | .0025-.0045 | Snug | .010-.020 | .010-.020 | .010-.035 |

Oil Pump and Oil Capacity

| Relief Valve Spring Pressure Lbs. @ Specified Length | Driveshaft to Housing Clearance | Relief Valve to Housing Clearance | Rotor Assembly End Clearance | Outer Race to Housing Clearance | Engine Oil Capacity (1) | | | Inner to Outer Rotor Tip Clearance |
|--|---------------------------------------|--|---------------------------------------|--|----------------------------|------------------|--------|--|
| | | | | | U.S. Qts. | Imperial Qts. | Liters | |
| 20.6-22.6 @ 2.49 | .0015-.0030 | .0015-.0030 | .004 Maximum | .001-.013 | 5 | 4.2 | 4.7 | .012 |

(1) Add 1 U.S. quart (or equivalent in Imperial quarts or litres) when replacing filter.

Fuel Pump — Mechanical

| Static Pressure (PSI) (1) E-150 — E-350 | Volume Flow — Minimum (1) (2) | Eccentric Total Lift — Inches |
|--|----------------------------------|----------------------------------|
| 6.0-8.0 | 1 pint in 20 seconds | .602-.622 |

- (1) On the engine with temperatures normalized and at normal curb idle speed, in neutral.
(2) The inside diameter of the smallest passage in the test flow circuit must not be less than .220.

Powertrain — Gasoline Engines — 7.5L V-8

TORQUE SPECIFICATIONS

General Specifications

NOTE: All values are in N·m (ft-lb) unless otherwise noted. Oil threads with engine oil unless the threads require oil or water-resistant sealer. The standard torque limits listed below are applicable for all functions not listed in the special torque chart.

Pipe Threads

| | | | |
|---------------|------------------|------------------|------------------|
| 1/8-27 | 1/4-18 | 3/8-18 | 1/2-14 |
| 7-11 (5-8) | 17-24 (12-18) | 30-44 (22-23) | 34-47 (25-35) |

TORQUE SPECIFICATIONS — CONT'D

Specific Applications

| Item | Torque | |
|---|--|----------|
| | N·m | (Ft-Lb) |
| Camshaft Sprocket — Gear to Camshaft | 55-61 | (40-45) |
| Camshaft Thrust Plate to Cylinder Block | 13-16 | (9-12) |
| Connecting Rod Nut | 55-61 | (45-50) |
| Cylinder Front Cover — 5/16" | 17-24 | (15-21) |
| Cylinder Head Bolts | (1) | |
| Damper to Crankshaft | 95-122 | (70-90) |
| EGR Valve to Carburetor Spacer or Intake Manifold | 17-24 | (12-18) |
| Carburetor Mounting Stud | 20 Max. | 15 Max. |
| Fuel Pump to Cylinder Block or Front Cover | 26-36 | (19-27) |
| Flywheel to Crankshaft | 103-115 | (75-85) |
| Main Bearing Cap Bolts | 129-142 | (95-105) |
| Manifold to Cylinder Head — Intake | 30-43 | (22-32) |
| Intake Manifold Vacuum Fittings | 8-13 | (6-10) |
| Manifold to Cylinder Head — Exhaust | 38-44 | (28-33) |
| Oil Filter Insert to Cylinder Block/Adapter | 62-74 | (45-55) |
| Oil Filter Adapter to Cylinder Block | 55-67 | (40-50) |
| Oil Filter to Adapter or Cylinder Block | 1/2 turn after gasket contacts sealing surface — oiled gasket | |
| Oil Inlet Tube to Pump | 17-24 | (12-18) |
| Oil Inlet Tube to Main Bearing Cap | 30-43 | (22-32) |

(1) Torque in steps: first to 108 N·m (80 ft-lb); then to 149 N·m (110 ft-lb); final to 177-189 N·m (130-140 ft-lb).

TORQUE SPECIFICATIONS — CONT'D**Specific Applications — Cont'd**

| Item | Torque | |
|---|---------------------------|-----------------|
| | N·m | (Ft-Lb) |
| Oil Pan Drain Plug | 21-33 | (15-25) |
| Oil Pan to Cylinder Block | 1/4" 10-12 5/16" 13-14 | (7-9) (9-11) |
| Oil Pump to Cylinder Block | 30-43 | (22-32) |
| Pulley to Damper Bolt | 48-67 | (35-50) |
| Rocker Arm Stud/Bolt to Cylinder Head | 25-33 | (18-25) |
| Spark Plug to Cylinder Head | 7-13 | (5-10) |
| Valve Rocker Arm Cover | 7-8 | (5-6) |
| Water Outlet Housing | 14-20 | (12-18) |
| Water Pump to Cylinder Block or Front Cover | 21-28 | (12-18) |
| Alternator Bracket to Cylinder Block — Bolt | 44-61 | (35-50) |
| Alternator Pivot Bolt | 62-77 | (45-57) |
| Alternator Adjusting Arm to Cylinder Block Bolt | 48-67 | (35-50) |
| Alternator Adjusting Arm to Alternator Bolt | 33-60 | (24-40) |
| Thermactor Pump Bracket to Cylinder Block | 41-61 | (35-50) |
| Thermactor Pump Pivot Bolt | 44-76 | (35-50) |
| Thermactor Pump Adjusting Arm to Pump | 30-43 | (22-32) |
| Thermactor Pump Pulley to Pump Hub | 17-24 | (150-220) |
| Carburetor Attaching Nuts | 17-20 | (12-15) |
| Distributor Clamp Down | 24-33 | (17-25) |

TORQUE SPECIFICATIONS — CONT'D**Ignition System**

| Item | Torque | |
|--|----------|-----------------|
| | N·m | As Noted |
| Distributor Holddown Bolt | 23-34 | 17-25 ft-lb |
| Distributor Adapter to Distributor Base | 2-2.5 | 18-23 in-lb |
| Stator Assy. Lower Plate Assy. to Distributor Base | 1.7 min. | 15 in-lb (min.) |
| Diaphragm Assembly to Distributor Base | 1.7 min. | 15 in-lb (min.) |
| Spark Plug to Cylinder Head 2.8L | 7-20 | 10-15 ft-lb |
| 4.9L | 20-27 | 15-20 ft-lb |
| 5.0L, 5.8L, 7.5L | 9-20 | 7-15 ft-lb |

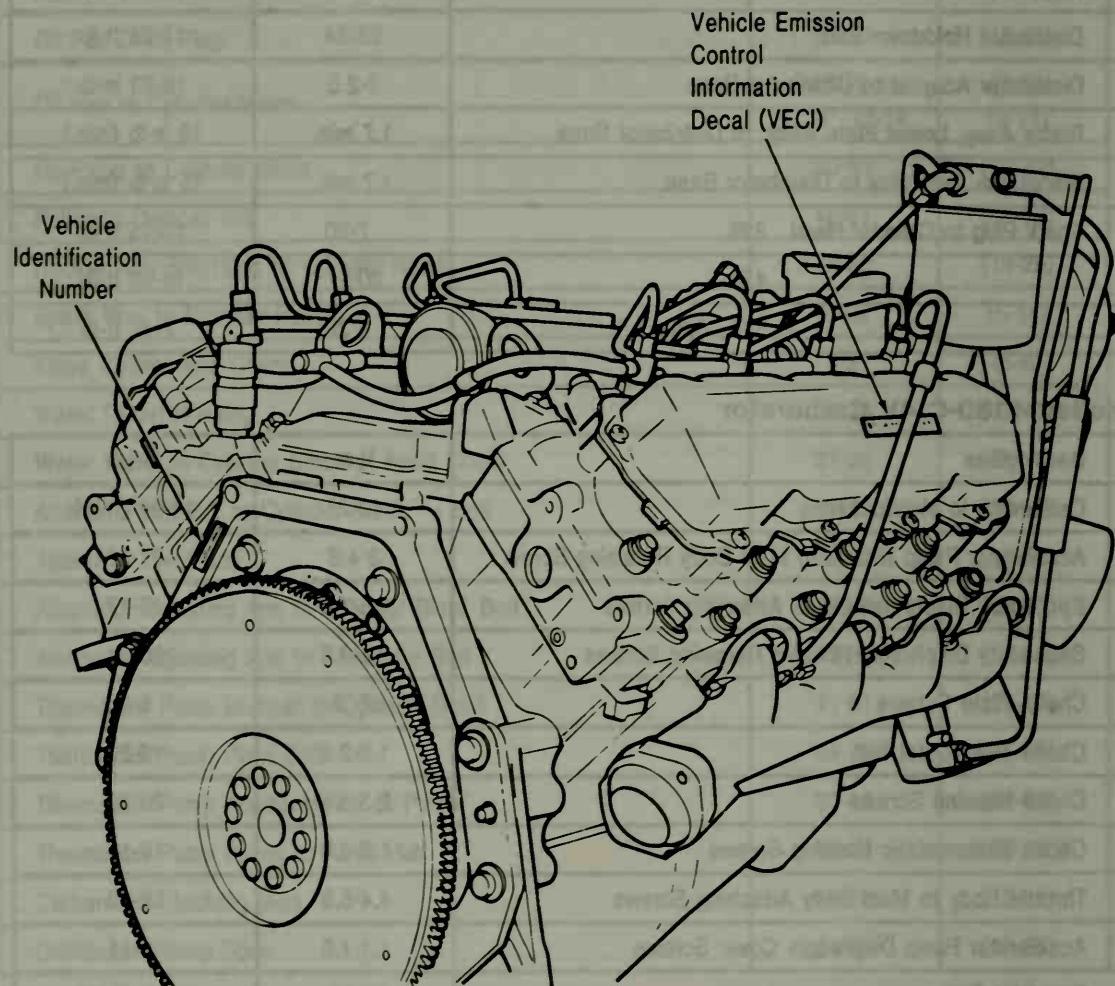
Holley 4180-C 4V Carburetor

| Description | N·m | In-Lb |
|--|-----------|---------------|
| Carburetor to Manifold Nuts | 19-27 | 14-20 (ft-lb) |
| Accelerator Pump Nozzle to Main Body Retaining Screw | 3-4.8 | 27-43 |
| Secondary Diaphragm Cover Attaching Screws | 1.5-1.9 | 13-17 |
| Secondary Diaphragm Housing Retaining Screws | 2.3-3.5 | 20-31 |
| Choke Plate Screws | .7-.9 | 6-8 |
| Choke Thermostat Nut | 1.8-2.3 | 16-20 |
| Choke Housing Screws | 2.3-3.4 | 20-30 |
| Choke Thermostatic Housing Screws | 1.8-2.0 | 16-18 |
| Throttle Body to Main Body Attaching Screws | 4.4-5.9 | 39-52 |
| Accelerator Pump Diaphragm Cover Screws | 1.1-1.6 | 10-14 |
| Fuel Inlet Fitting | 30-35 | 22-26 (lb-ft) |
| Fuel Level Sight Plug | 2.2-2.7 | 19-24 |
| Power Valve | 12.2-16.3 | 9-12 (lb-ft) |
| Jets to Metering Block | 2.0-2.5 | 18-20 |
| Fuel Bowl Retaining Screws | 5.7-6.8 | 50-60 |

IDENTIFICATION

Vehicle Emission Control Information Decal

Decal Location



ENGINE EXHAUST EMISSION CONTROL INFORMATION 6.9LD ENGINE FAMILY

| | | | | | | | | | | | | | | |
|---|-------------------|--|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|--|--|
| MODEL | A170 | THIS ENGINE CONFORMS TO U.S. ENVIRONMENTAL- PROTECTION AGENCY, CANADIAN, AND CALIFORNIA REGULATIONS APPLICABLE TO 1983 MODEL YEAR HEAVY DUTY DIESEL ENGINES | | | | | | | | | | | | |
| ADV. BHP @ RPM | 170 @ 3300 | | | | | | | | | | | | | |
| FUEL RATE IN ADV. BHP MIN 1 STROKE | 54.5 | | | | | | | | | | | | | |
| INITIAL INJECTION TIMING DEGREES BTDC | MARKS ALIGNED | | | | | | | | | | | | | |
| DISPLACEMENT 6.9 LITERS | IDLE RPM 650 ± 50 | | | | | | | | | | | | | |
| SETTINGS MUST BE MADE WITH ENGINE AT NORMAL OPERATING TEMPERATURE, AIR CONDITIONING OFF, TRANSMISSION IN NEUTRAL | | | | | | | | | | | | | | |
| '84 | JUN | JUL | AUG | SEP | OCT | NOV | DEC | | | | | | | |
| '85 | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC | | |

IDENTIFICATION — CONT'D

Engine Code Label

YEAR 50S 49S CANADA CALIF.

| | | | | |
|---|---|-----|-----|-----|
| 0 | 0 | A | L | S |
| 1 | 1 | B | M | T |
| 2 | 2 | C | N | U |
| 3 | 3 | D | P | W |
| 4 | 4 | E F | R L | X S |
| 5 | 6 | G | M | T |
| 7 | 7 | H | N | U |
| 8 | 8 | J | P | W |
| 9 | 9 | K | R | X |

BASE
DISPLACEMENT
VEHICLE APPLICATION
INERTIA WEIGHT
AXLE RATIO
TRANSMISSION

- A — AIR CONDITIONING
- B — NON-AIR CONDITIONING
- C — INDUSTRIAL & MARINE
- D — EXPORT
- E — OVER 6000 LBS/NON-THERM
- F — THERMACTOR WITHOUT A/C
- G — A/C OR NON-A/C ENGINES
- H — POWER STEERING
- J — THERMACTOR WITH A/C
- K — THERMACTOR A/C OR NON-A/C
- L — OVER 6000 LBS/THERM

DESIGN LEVEL

A — USED TO INDICATE INITIAL RELEASE

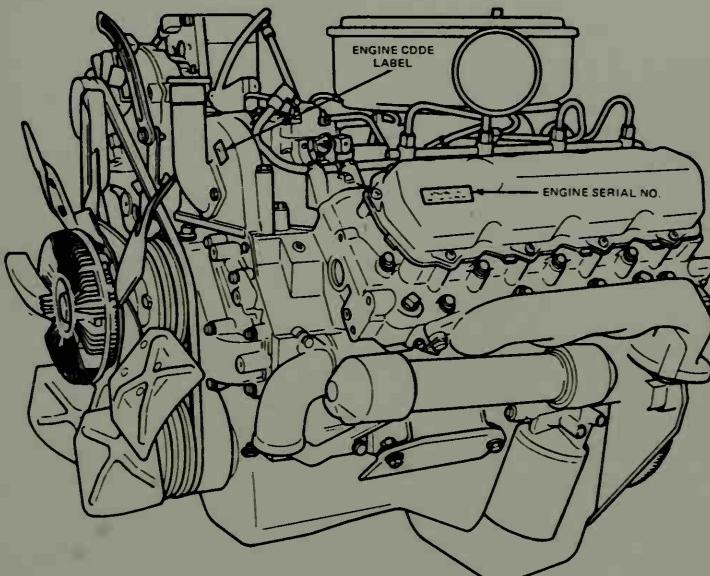
CALIB & REVISION LEVEL
A — USED TO INDICATE
INITIAL RELEASE

| | | | | | | | | | | | |
|-----------------------------------|--|--|--|--|--|--|--|--|--|--|----------------|
| 3G 001 AA | | | | | | | | | | | |
| A B C D E F G H J K L M | | | | | | | | | | | CALIBRATION |
| 1 2 3 83 84 85 | | | | | | | | | | | 368J-R00 |
| 1 2 3 4 5 6 7 8 9 0 | | | | | | | | | | | REVISION LEVEL |

← REVISION LEVEL
CALIBRATION NUMBER

*CALENDAR YEAR MUST BE HERE
FOR ALL O/8500# TRUCK ENGINES

LABEL LOCATION



Compression Test Percentages

| Maximum kPa (PSI) | Minimum kPa (PSI) |
|----------------------|----------------------|
| 1792 (260) | 1344 (195) |
| 1929 (280) | 1447 (210) |
| 2067 (300) | 1551 (225) |
| 2205 (320) | 1654 (240) |
| 2343 (340) | 1757 (255) |
| 2481 (360) | 1860 (270) |
| 2619 (380) | 1964 (285) |
| 2756 (400) | 2067 (300) |
| 2894 (420) | 2171 (315) |
| 3032 (440) | 2274 (330) |

OPERATIONAL SPECIFICATIONS:

WOLFSBURG

Idle Speeds(1)

Curb

(2) 750 RPM \pm 25 RPM(3) 675 RPM \pm 25 RPM

Fast

875 RPM \pm 25 RPM

(1) Measure idle speeds with manual transmission in neutral, or automatic transmission in drive.

(2) Early production models.

(3) Later production models.

Injection Timing-Static Timing

Align timing mark on injection pump mounting flange with timing mark on pump mounting adaptor.

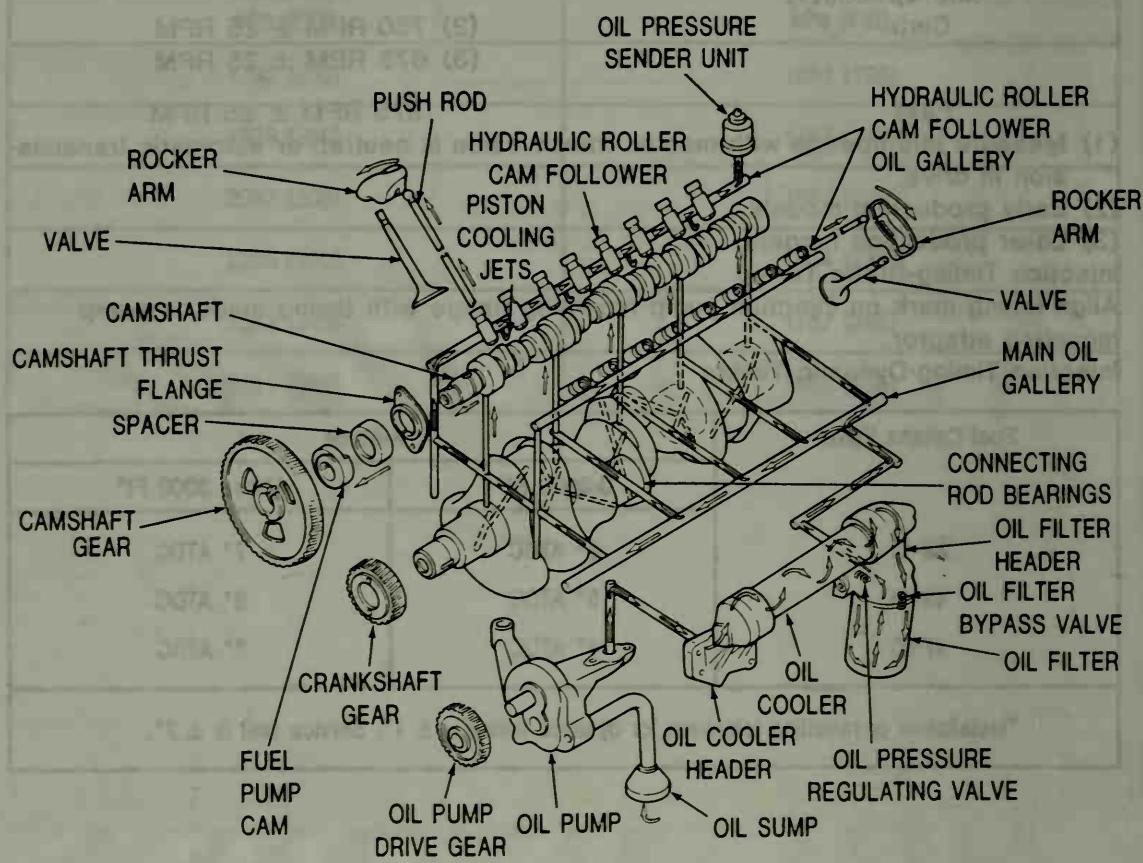
Injection Timing-Dynamic Timing

| Fuel Cetane Value | Altitude | |
|-------------------|------------|----------------|
| | 0-3000 Ft* | Above 3000 Ft* |
| 38-42 | 3.5° ATDC | 4.5° ATDC |
| 43-46 | 2.5° ATDC | 3.5° ATDC |
| 47 or greater | 1.5° ATDC | 2.5° ATDC |

*Installation or resetting tolerance for dynamic timing is \pm 1°. Service limit is \pm 2°.

(1) Values apply to early and late engines.
(2) Cetane values apply to 100-160.

OIL FLOW



SERVICE SPECIFICATIONS**General Specifications**

| Bore and Stroke | Firing Order | Oil Pressure Hot @ 2000 RPM kPa (PSI) | Engine Type and Number of Cylinders | Compression Ratio |
|-----------------|-----------------|---|---|----------------------|
| 4.00" x 4.18" | 1-2-7-3-4-5-6-8 | 276-414 (40-60) | O.H.V. V-8 | 20.7 to 1 |

Belt Tension

| Belt Size | Newly Installed(1) | | Used Over 10 Min. | |
|-----------|--------------------|---------|-------------------|-----------|
| | Kg | (lb) | Kg | (lb) |
| All | 55-72 | 120-160 | 34-54 | 75-120(2) |

- (1) Tension measured immediately after belt is installed and before it is stretched or seats in pulley grooves (all belts).
 (2) If less than 34 Kg (75 lbs), readjust to 41-54 Kg (90-120 lbs).

Cylinder Head

| Pre-Chamber Insert Protrusion | Valve Guide Bore Diameter | | Valve Seat Width(1) | | Valve Seat Runout TIR Maximum | Valve Arrangement Front to rear | Gasket Surface Flatness (2) |
|-------------------------------------|---------------------------------|---------|------------------------|-------------|-------------------------------------|--|---|
| | Intake | Exhaust | Intake | Exhaust | | | |
| | .3736 | .3736 | .080 ± .015 | .080 ± .015 | | | |
| (-.002)- (+.002) | .3746 | .3746 | | | .002 | LT E-I-E-I-E-I-E-I RT I-E-I-E-I-E-I-E | .003 in any 6 in. .006 overall |

- (1) Valve seat angle — Intake 30° and Exhaust 37.5°
 (2) Gasket surface finish — RMS 60-150.

Cylinder Head

| Cylinder Head Dimensions(1) | Non-Running Surface Flatness | Non-Running Surface Runout | Non-Running Surface Waves |
|--------------------------------|---------------------------------|----------------------------------|------------------------------|
| 4.000 ± .005 | RMS 60-150 | .002 in any 6 in. any overall | RMS 60-150 |

SERVICE SPECIFICATIONS — CONT'D**Valve Rocker Arm Shaft, Push Rods and Tappets**

| Type | Push Rod Runout TIR Maximum | Valve Tappet or Lifter | | | Collapsed Tappet Gap (Clearance) |
|------------------------------|--------------------------------|------------------------|-------------------------|--------------------------------------|-------------------------------------|
| | | Standard Diameter | Clearance to Bore(1) | Hydraulic Lifter Leakdown Rate(2) | |
| Hydraulic Roller Follower | .015 | .9209 .9217 | .0011 .0034 | 12 to 90 Sec. For .125 Travel | |

(1) Service limit — .005

(2) Time required for plunger to leakdown .125 in. under load of 50 lbs. using leakdown fluid in tappet.

Valve Springs

| Valve Spring Compression Pressure Lbs. @ Specified Height | | Valve Spring Free Length (Approximate) | | Valve Spring Assembled Height | | Valve Spring Out of Square Maximum |
|---|------------|--|---------|-------------------------------------|---------|---|
| Intake(1) | Exhaust | Intake | Exhaust | Intake | Exhaust | |
| 60 @ 1.798 | 60 @ 1.798 | 2.040 | 2.040 | | | 5/64(.078) |

(1) Service Limit — 10% loss of pressure.

SERVICE SPECIFICATIONS — CONT'D

Valves

| Valve Stem to Guide Clearance(1) | | Valve Face Angle | | Valve Face Runout TIR Maximum |
|----------------------------------|-------------|------------------|---------|----------------------------------|
| Intake | Exhaust | Intake | Exhaust | |
| .0012-.0029 | .0012-.0029 | 30° | 37.5° | .002 |

(1) Service clearance — .0055

| Valve Stem Diameter | | Valve Head Recession Relative To Deck Surface | |
|---------------------|---------------|---|-----------|
| Intake | Exhaust | Intake | Exhaust |
| .37165-.37235 | .37165-.37235 | .042-.052 | .043-.055 |

Camshaft

| Camshaft End Play | | Camshaft Journal to Bearing Clearance |
|-------------------|---------------|---------------------------------------|
| End Play | Service Limit | |
| .001-.009 | — | |
| | | .025-.140mm (.001-.0055") |

Camshaft Drive

| Camshaft Bearing Inside Diameter | | | | | Camshaft Front Bearing Location(1) | Gear Backlash |
|----------------------------------|-------------------|-------------------|-------------------|-------------------|------------------------------------|---------------|
| No. 1 | No. 2 | No. 3 | No. 4 | No. 5 | | |
| 2.1010- 2.1045 | 2.1020- 2.1055 | 2.1020- 2.1055 | 2.1020- 2.1055 | 2.1020- 2.1055 | .040-.060 | .0015-.013 |

(1) Distance in inches that front edge of the bearing is installed below the front face of the cylinder block.

Injection Pump Drive Gear Backlash — .0055-.0010

Cylinder Block

| Cylinder Bore Diameter(1) | Main Bearing Inside Diameter(2) | Head Gasket Surface Flatness | Head Gasket Surface Finish |
|---------------------------|---------------------------------|-----------------------------------|----------------------------|
| 3.9995-4.0015 | 3.1254-3.1274 | .003 in any 6 in. .006 overall | RMS 90-150 |

(1) Maximum Out-of-Round — 0.0003

(2) Service Limit — 0.012

Powertrain — Diesel Engines — 6.9L V-8

SERVICE SPECIFICATIONS — CONT'D

Crankshaft and Flywheel

Push Rods and Tappets

| Engine | Main Bearing Journal Diameter(1) | Main Bearing Journal Runout TIR Maximum(2) | Main Bearing Thrust Face Runout TIR Maximum | Main Bearing Journal Taper Maximum Per Inch | Thrust Bearing Journal Length | Main and Rod Bearing Journal Finish RMS Maximum | Main Bearing Thrust Face Finish RMS Maximum |
|-------------|----------------------------------|--|---|---|-------------------------------|---|---|
| 6.9L Diesel | 3.1228-3.1236 | .002 | .001 | .0005 | 1.1325-1.1355 | 5-20 | 25 Front — 23 Rear |
| Undersize | 0.010 | 3.1128-3.1136 | | | | | |
| | 0.020 | 3.1028-3.1036 | | | | | |
| | 0.030 | 3.0928-3.0936 | | | | | |

(1) Maximum Out-of-Round — 0.0002.

(2) Service Limit — 0.005

Cylindrical Drive

| No. 1 | No. 2 | No. 3 | No. 4 | No. 5 | No. 6 | Cylindrical Bore and Pinion Gear Distances | |
|--------|--------|--------|--------|--------|--------|--|------------------|
| | | | | | | Front Pinion (1) | Front Pinion (2) |
| 5.1028 | 5.1028 | 5.1028 | 5.1028 | 5.1028 | 5.1028 | 5.1028-5.1030 | 5.1028-5.1030 |

(1) Clearance in inches from edge of flywheel to flywheel side bearing (the front face of the cylinder block).

Selection Pump Drive Gear Specifications — .0025-.0040

Cylinder Block

| Diameter(1) | Diameter(2) | High Gasket Surface | High Gasket Surface | Cylinder Block |
|---------------|---------------|--|---------------------|----------------|
| .86000-.86016 | .81524-.81544 | .003 in plus or minus .000 over or under | RMS 30-150 | |

(1) Maximum Out-of-Round — 0.0003

(2) Service Limit — 0.015

SERVICE SPECIFICATIONS — CONT'D

Crankshaft and Flywheel — Cont'd

| Engine | Connecting Rod Journal Diameter (1) | Connecting Rod Journal Taper Per Inch Maximum | Crankshaft End Play (2) | Flywheel and Ring Gear Runout |
|-------------|--|---|----------------------------|--|
| 6.9L Diesel | 2.4980-2.4990 | .0005 | .002-.009 | .008 |
| Undersize | 0.010 | 2.488-2.489 | | Flywheel and Ring Gear Concentricity |
| | 0.020 | 2.478-2.479 | | |
| | 0.030 | 2.468-2.469 | | .008 |

(1) Maximum out-of-round — .0003

(2) Service limit — .012

Crankshaft Bearings

| Connecting Rod Bearing to Crankshaft Clearance Selective Fit | | | Main Bearing to Crankshaft Clearance Selective Fit | | |
|---|-------------|--------------------------------|---|-------------|--------------------------------|
| Desired | Allowable | Bearing Wall Thickness Std. | Desired | Allowable | Bearing Wall Thickness Std. |
| .0011-.0026 | .0011-.0036 | — | .0018-.0036 | .0018-.0046 | — |

Connecting Rod

| Piston Pin Bore or Bushing I.D. | Rod Bearing Bore I.D. (1) | Rod Length Center to Center | Connecting Rod Alignment Maximum Total Difference | | Rod to Crankshaft Assembled Side Clearance |
|------------------------------------|------------------------------|--------------------------------|--|----------|--|
| | | | Twist (2) | Bend (2) | |
| 1.1105-1.1107 | 2.5001-2.5016 | | .016 | .008 | .008-.020 |

(1) Connecting rod bearing bore maximum out-of-round — .005 and maximum bore taper — .0005.

(2) Pin bushing and crankshaft bore must be parallel and in same vertical plane within specified total difference when measured at the ends of an 8-inch long bar, 4 inches on each side of rod centerline.

SERVICE SPECIFICATIONS — CONT'D

Crankshaft and Flywheel — Cont'd

Piston

| Skirt Diameter (1) (2) | Piston to Bore Clearance Selective Fit | Piston Pin Bore Diameter | Piston Height Above Crankcase |
|------------------------|--|--------------------------|-------------------------------|
| Standard | | | |
| 3.9935-3.9955 | .0055-.0065 | 1.1104-1.1106 | .010-.031 |

(1) Measured at 90° to the pin, at 1.25 inch below oil ring groove.

(2) Service piston is 3.9945-3.9955.

Piston Pin

| Length | Diameter | Ring End Clearance | To Piston Pin Bore Clearance (1) | To Connecting Rod Bushing Clearance |
|-------------|---------------|--------------------|----------------------------------|-------------------------------------|
| 2.692-2.703 | 1.1099-1.1101 | .001-.029 | .0003-.0007 | .0004-.0008 |

(1) Selective Fit.

Piston Rings

| Ring Diameters | Side Clearance (1) | | | Ring Gap | | |
|--------------------|--------------------|-----------|-----------|-------------|-----------|-----------|
| | Compression | | Oil | Compression | | Oil |
| | Top | Bottom | | Top | Bottom | |
| 101.6mm (4.00 in.) | .002-.004 | .002-.004 | .001-.003 | .014-.024 | .060-.070 | .010-.024 |

(1) Service limit — .002 maximum increase in clearance.

SERVICE SPECIFICATIONS — CONT'D

Oil Pump, Oil Cooler and Oil Capacity

| Engine | Oil Pump Pressures | | Engine Oil Capacity(1) | | | Oil Pump Gear Backlash |
|----------------|--------------------|--------------------------|------------------------|---------------|--------|------------------------|
| | Curb Idle | 2200 RPM | U.S. Qts. | Imperial Qts. | Liters | |
| 6.9L Diesel | 69 kPa (10 psi) | 276-483 kPa 40-70 psi | 9 | 9.7 | 8.5 | .0015-.013 |

(1) Add 1 U.S. quart (or equivalent in Imperial quarts or liters) when replacing filter.

NOTE: Unless otherwise specified, use standard torque chart. Torque values are with threads and washer faces coated with engine oil. Torque values are listed without tolerance. Variations to torque will occur due to torque wrench calibration. Variation should be within 10% of nominal values.

Torque Specifications

Standard Torque

| 1/4x20 UNC | 5/16-18 UNC | 3/8-16 UNC | 7/16-14 UNC | 1/2x13 UNC |
|-------------------|-------------------|-------------------|-------------------|-------------------|
| 9.5 N·m (7 ft-lb) | 19 N·m (14 ft-lb) | 32 N·m (24 ft-lb) | 51 N·m (38 ft-lb) | 81 N·m (60 ft-lb) |

Pipe Threads

| 1/8x27 | 1/4x18 | 3/8x18 | 1/2x14 |
|----------------------|-------------------------|-------------------------|-------------------------|
| 7-11 N·m (5-8 ft-lb) | 17-24 N·m (12-18 ft-lb) | 30-44 N·m (22-33 ft-lb) | 34-47 N·m (25-35 ft-lb) |

| Item | N·m | Ft-Lb |
|---------------------------------------|-------|-------|
| Camshaft Gear Screw | 17-24 | 12-18 |
| Connecting Rod Nut | (2) | |
| Crankcase Front Cover | (1) | |
| Cylinder Head Bolts | (3) | |
| Damper to Crankshaft | 122 | 90 |
| CDR Valve | (1) | |
| Fuel Supply Pump | (1) | |
| Fuel Filter Adapter to Brake | 33-52 | 24-39 |
| Fuel Filter Bracket to Cylinder Block | 33-52 | 24-39 |

- (1) Use Standard Torque Chart Above
- (2) Tighten to 52 N·m (38 ft-lb), then to 62-68 N·m (46-51 ft-lb)
- (3) Tighten to 54 N·m (40 ft-lb), then to 88 N·m (65 ft-lb), then to 101 N·m (75 ft-lb), and again to 101 N·m (75 ft-lb) in sequence.
- (4) Tighten to 101 N·m (75 ft-lb), then to 129 N·m (95 ft-lb)
- (5) RTV Sealer required, refer to Light Truck Engine Shop manual.
- (6) Tighten using Standard Torque Chart above, then tighten again in sequence.
- (7) Tighten to 8 N·m (6 ft-lb), then tighten again to 8 N·m (6 ft-lb) in sequence.
- (8) Tighten to 41 N·m (30 ft-lb), then tighten again to 41 N·m (30 ft-lb) in sequence.

TORQUE SPECIFICATIONS — CONT'D

| Item | N·m | Ft-Lb |
|---|---|-------|
| Fuel Filter to Adapter | 1/2 turn after gasket contacts sealing surface | |
| Flywheel to Crankshaft | 64 | 47 |
| Main Bearing Cap Bolts | (4) | |
| Manifold — Exhaust | 41 | (8) |
| Manifold — Intake | | (6) |
| Oil Filter to Header Adapter | 1-1/4 to 2 turns after gasket contacts sealing surface — oiled gasket | |
| Oil Cooler to Cylinder Block | (1) | |
| Oil Cooler Plug | 21 | 15 |
| Oil Pan Drain Plug | 38 | 28 |
| Oil Pan to Cylinder Block | (1) | |
| Pulley to Vibration Damper | (1) | |
| Valve Cover Screw | 8 | (7) |
| Valve Lever Post Bolt | 27 | 20 |
| Glow Plug | 16 | 12 |
| Nozzle Assembly | 47 | 35 |
| Nozzle Connector Nut | 30 | 22 |
| Injection Pump Outlet Fitting Nut | 30 | 22 |
| Injection Pump Adapter | 19 | 14 |
| Injection Pump Gear Mounting Bolts | 34 | 25 |
| Water Pump to Front Cover | 19 | (5) |
| Heater Hose Connector (Water Pump, Cylinder Head) | 17-24 | 12-18 |
| Oil Pressure Hose Assembly | 20-27 | 15-20 |
| Alternator Bracket to Cylinder Block | 33-52 | 24-39 |
| Alternator Pivot Bolt | 38-71 | 28-53 |
| Alternator Support Bracket to Water Pump | 33-52 | 24-39 |
| Alternator Adjusting Arm to Support | 33-52 | 24-39 |
| Alternator Adjusting Bolt | 33-52 | 24-39 |
| Water Outlet (Thermostat) | 27 | 20 |

(1) Use Standard Torque Chart Above

(2) Tighten to 52 N·m (38 ft-lb), then to 66-72 N·m (48.5-53.5 ft-lb)

(3) Tighten to 54 N·m (40 ft-lb), then to 95 N·m (70 ft-lb), then to 108 N·m (80 ft-lb), and again to 101 N·m (75 ft-lb) in sequence.

(4) Tighten to 101 N·m (75 ft-lb), then to 129 N·m (95 ft-lb)

(5) RTV Sealer required, refer to Light Truck Engine Shop manual.

(6) Tighten using Standard Torque Chart above, then tighten again in sequence.

(7) Tighten to 8 N·m (6 ft-lb), then tighten again to 8 N·m (6 ft-lb) in sequence.

(8) Tighten to 41 N·m (30 ft-lb), then tighten again to 41 N·m (30 ft-lb) in sequence.

TORQUE SPECIFICATIONS — CONT'D**Pipe Threads — Cont'd**

| Item | N·m | Ft-Lb |
|---|--------|-------|
| Nozzle Assembly | 45 | 33 |
| Nozzle Connector Nut | 30 | 22 |
| Injection Pump Outlet Fitting Nut | 30 | 22 |
| Injection Pump Adapter | 19 | 14 |
| Water Pump to Front Cover | 19 (5) | 14 |
| Heater Hose Connector (Water Pump, Cylinder Head) | 17-24 | 12-18 |
| Oil Pressure Hose Assembly | 20-27 | 15-20 |
| Alternator Bracket to Cylinder Block | 33-52 | 24-39 |
| Alternator Pivot Bolt | 38-71 | 28-53 |
| Alternator Support Bracket to Water Pump | 33-52 | 24-39 |
| Alternator Adjusting Arm to Support | 33-52 | 24-39 |
| Alternator Adjusting Bolt | 33-52 | 24-39 |
| Water Outlet (Thermostat) | 27 | 20 |

Powertrain — Fuel System

MECHANICAL FUEL PUMP

Flow and Pressure

| Engine Liter (CID) | Static Pressure kPa (PSI)(1) | Min. Volume Flow |
|--------------------|------------------------------|---------------------------------------|
| 2.0L/2.3L | 34.47-41.47 (5.0)-(7.0) | .473 liters (1 pint) in 25 seconds |
| 2.8L V-6 | 31-44.8 (4.5-6.5) | .473 liters (1 pint) in 30 seconds |
| 4.9 (300) | (5-7) | — |
| 5.0 (302) | (6-8) | — |
| 5.8W (351W) | (6-8) | — |
| 7.5 (460) | (6-8) | — |

(1) On engine with temperatures normalized and at normal curb idle speed, transmission neutral.

Torque Specifications

| Engine Liter | Mounting Bolts N·m (Ft-Lb) | Fuel Lines to Pump N·m (Ft-Lbs) |
|---------------|----------------------------|---------------------------------|
| 2.0L/2.3L I-4 | 19-29 (14-21) | — |
| 2.8L V-6 | 20-24 (15-18) | — |
| 4.9L | 16-24 (12-18) | 20-24 (15-18) |
| 5.0L | 26-37 (19-27) | 20-24 (15-18) |
| 5.8L (W) | 26-37 (19-27) | 20-24 (15-18) |
| 7.5L | 26-37 (19-27) | 20-24 (15-18) |

Fuel Tanks, Lines and Filters

Torque Specifications — Ranger

| Item | N·m | In-Lb |
|--|-------|---------------|
| Carbon Canister Mounting Bracket Screws | 8-12 | 70-105 |
| Carbon Canister to Bracket Screw | 3-4 | 25-35 |
| Fuel Tank Mounting Nuts | 25-33 | 18-25 (Ft-Lb) |
| Fill Pipe Clamp | 3-4 | 25-35 |
| Inlet Pipe to Body Screws | 2-4 | 17-35 |
| Filter to Carburetor | 9-11 | 80-100 |
| Fuel Supply Tube Nut | 20-24 | 15-18 (Ft-Lb) |
| Midship Tank Skid Plate Bolts and Nuts (4x4) | 20-27 | 15-19 (Ft-Lb) |
| Aft Tank Skid Plate Nuts | 36-50 | 27-36 (Ft-Lb) |
| Fuel Selector Valve Bracket to Frame Bolts (Dual Fuel Tanks) | 30-41 | 23-30 (Ft-Lb) |

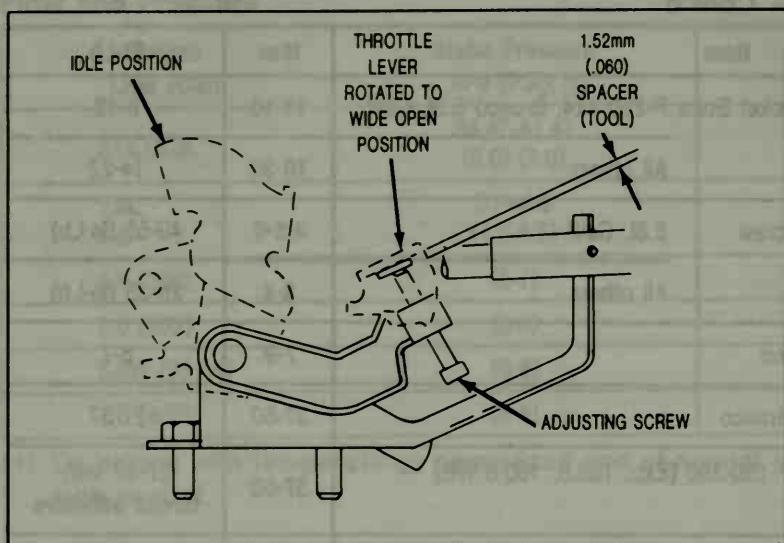
Powertrain — Fuel System

FUEL TANKS, LINES AND FILTERS — CONT'D

Torque Specifications — Cont'd

| Item | N·m | Ft-Lb |
|---|-------------|----------------------------|
| Carbon Canister Mounting Bracket Bolts F-250 4x4, Bronco 5.8L Calif. | 11-16 | 8-12 |
| All others | 19-30 | 14-22 |
| Carbon Canister to Bracket Screw | 5.8L Calif. | 4.5-6 |
| All others | 3-4 | 25-35 (In-Lb) |
| Fuel Tank Strap Nuts — Bronco | 7-9 | 5-7 |
| Fuel Tank Attaching Nuts — Bronco | 37-50 | 27-37 |
| Fuel Tank Attaching Nuts — F-150-350 (Exc. 136.8, 160.8 WB) — Aft Tank | 37-50 | 27-37 with thread adhesive |
| Skid Plate to Strap Nuts — F-150-350 136.8, 160.8 WB — Aft Tank | 7-10 | 5-8 |
| Fuel Tank Attaching Nuts — F-150-350 136.8, 160.8 WB — Aft Tank | 34-47 | 25-35 |
| Shield Attaching Bolts — F-150-350 136.8, 160.8 WB — Aft Tank | 10-14 | 7-11 |
| Hose Inlet Assembly on Fuel Tank — F-150-350 136.8, 160.8 WB — Aft Tank | 18-25 | 13-19 |
| Fuel Tank Attaching Nuts — F-150-350 Midship Tank — Gasoline Engines | 17-24 | 12-18 |
| Fuel Tank Attaching Nuts — F-150-350 Midship Tank — Diesel Engine | 12-18 | 9-13 |
| Fuel Tank Attaching Nuts — E-150-350 Aft Body Mounted Tanks | 10-14 | 7-11 |
| Fuel Tank Attaching Nuts — E-150-350 Aft Frame Mounted Tank | 61-75 | 45-56 |
| Fuel Tank Attaching Nuts — E-150-350 Midship Tank | 48-67 | 35-50 |
| Filler Pipe to Body Screws — All | 2-3 | 17-25 (In-Lb) |
| Filler Hose Clamps | 3-4 | 25-35 (In-Lb) |

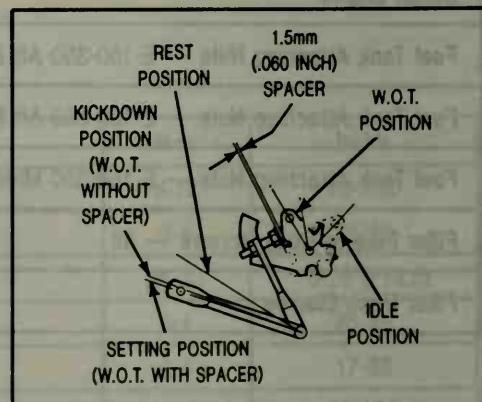
THROTTLE LINKAGE ADJUSTMENT — RANGER



- (1) Place 13.20 kg (6 lb) weight on kickdown lever.
- (2) Rotate throttle to wide open position.
- (3) Insert 1.52mm (.06 inch) spacer between throttle lever and adjusting screw.
- (4) Rotate adjusting screw until contact is made between screw and 1.52mm (.06 inch) spacer.
- (5) Remove spacer.
- (6) After adjustment, a gap of 0.025 to 0.203mm (.001 to .008 inch).
- (7) Remove weight from kickdown lever.

THROTTLE LINKAGE ADJUSTMENT — E-150-350 WITH 4.9L ENGINE

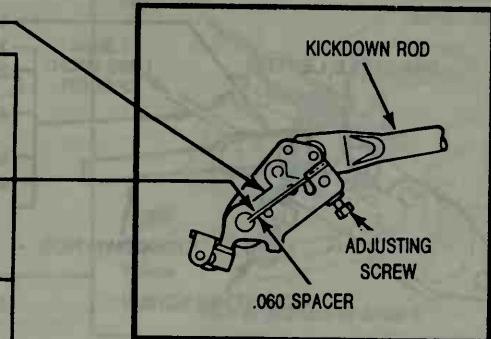
- (1) Apply 6 lb. weight to transmission kickdown lever.
- (2) Rotate throttle to wide open position.
- (3) Insert 1.5mm (.060 inch) spacer between throttle lever and adjusting screw.
- (4) Rotate adjusting screw until contact is made between screw and 1.5mm (.060 inch) spacer then tighten locknut.
- (5) Remove 1.5mm (.060 inch) spacer.
- (6) After removing the spacer a gap of 1.78mm (.070 inch) to .25mm (.010 inch) is acceptable.
- (7) 1.78-.25mm (0.70-0.10 inch) gap to be verified in accordance with a frequency.
- (8) Remove 6 lb. weight.



THROTTLE LINKAGE — CONT'D

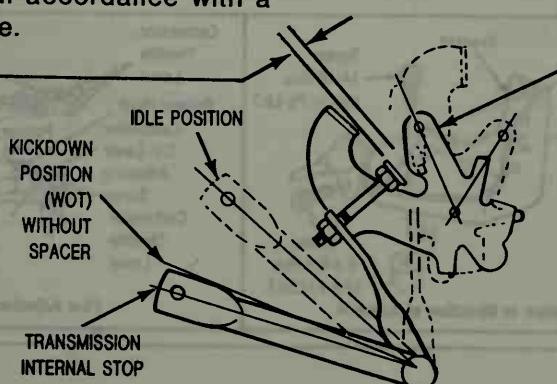
E-150-350 with 5.0L, 5.8L, 7.5L Engines

- (1) Place 6 lb. weight to transmission kickdown lever.
- (2) Rotate throttle to wide open position.
- (3) Insert 1.5mm (.060 inch) spacer between throttle lever and adjusting screw.
- (4) Rotate adjusting screw until contact is made between screw and 1.5mm (.060 inch) spacer.
- (5) Remove 1.5mm (.060 inch) spacer.
- (6) After removing the spacer a gap of 1.78mm (.070 inch) to .25mm (.010 inch) is acceptable.
- (7) 1.78-.25mm (.070-.010 inch) gap to be verified in accordance with a frequency.
- (8) Remove 6 lb. weight.



F-150-350 (4x2), F-150-250 (4x4), Bronco with 4.9L Engine

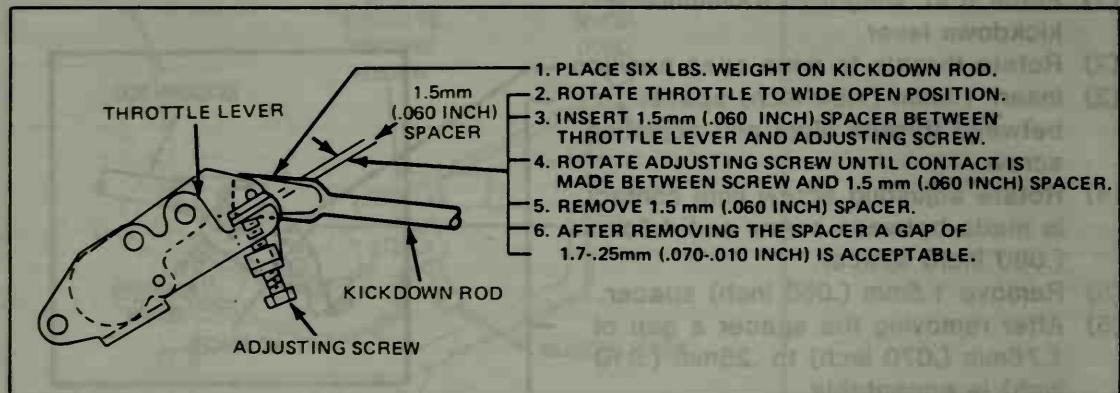
- (1) Apply 6 lb. weight to transmission kickdown lever.
- (2) Rotate throttle to wide open position.
- (3) Insert 1.5mm (.060) spacer between throttle lever and adjusting screw.
- (4) Rotate adjusting screw until contact is made between screw and 1.5mm (.060 spacer) then tighten locknut.
- (5) Remove 1.5mm (.060 spacer) and 6 lb. weight.
- (6) After Removing the spacer a gap of 1.77-.25mm (.070 to .010) is acceptable.
- (7) 1.77-.25mm (.070-.010) gap to be verified in accordance with a frequency.



Powertrain — Fuel System

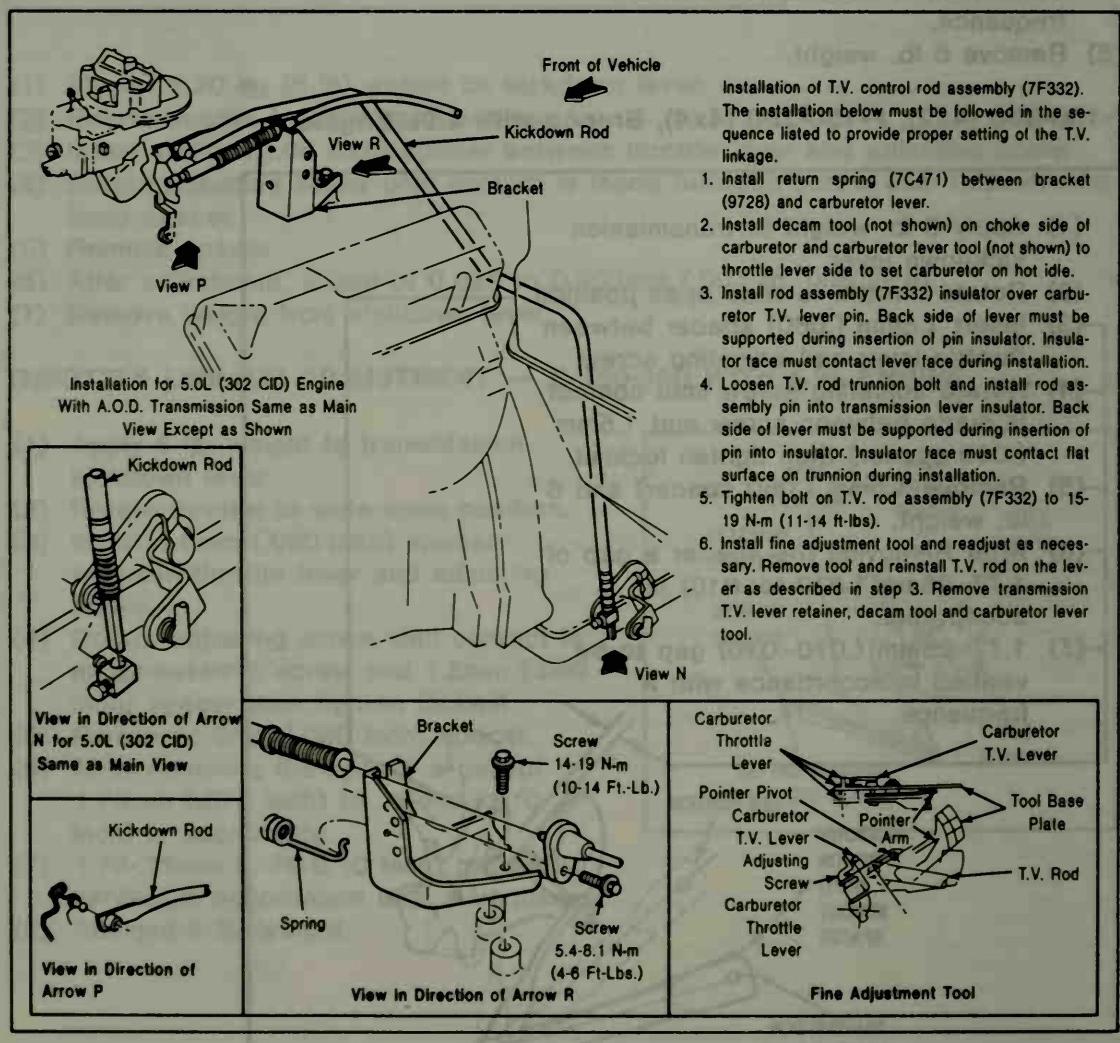
THROTTLE LINKAGE — CONT'D

F-150-350, Bronco With V-8 Engines, Except Those with AOD Transmission



F-150-250 with 5.0L Engine and AOD Transmission

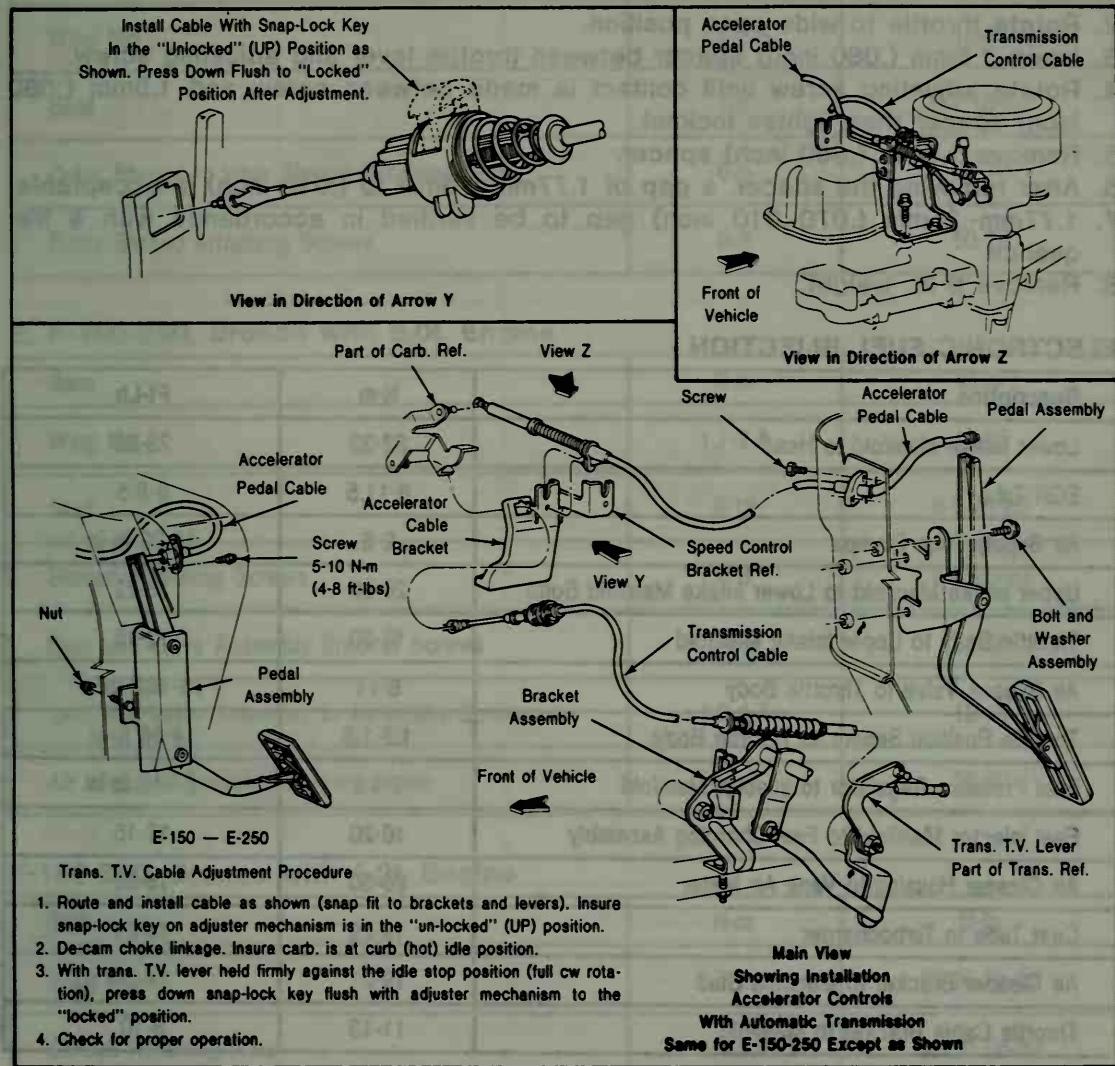
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Powertrain — Fuel System

THROTTLE LINKAGE — CONT'D

F-150, E-150-350 with 4.9L Engine and AOD Transmission



Powertrain — Fuel System

THROTTLE LINKAGE — CONT'D

F-250-350 with 6.9L Diesel Engine

1. Apply 6 lb. weight to transmission kickdown lever.
2. Rotate throttle to wide open position.
3. Insert 1.5mm (.060 inch) spacer between throttle lever and adjusting screw.
4. Rotate adjusting screw until contact is made between screw and 1.5mm (.060 inch) spacer then tighten locknut.
5. Remove 1.5mm (.060 inch) spacer.
6. After removing the spacer, a gap of 1.77mm-.25mm to (.010 inch) is acceptable.
7. 1.77mm-.25mm (.070-.010 inch) gap to be verified in accordance with a frequency.
8. Remove 6 lb. weight.

ELECTRONIC FUEL INJECTION

| Description | N·m | Ft-Lb |
|--|---------|--------------|
| Lower Intake Manifold to Head | 32-33 | 23-25 |
| EGR Tube | 8-11.5 | 6-8.5 |
| Air Supply Tube Clamps | 2-3 | 15-23 lb-in |
| Upper Intake Manifold to Lower Intake Manifold Bolts | 20-30 | 15-22 |
| Throttle Body to Upper Intake Manifold | 16-20 | 12-15 |
| Air Bypass Valve to Throttle Body | 8-11 | 71-102 lb-in |
| Throttle Position Sensor to Throttle Body | 1.2-1.8 | 14-16 lb-in |
| Fuel Pressure Regulator to Injector Manifold | 3-4.5 | 27-40 lb-in |
| Fuel Injector Manifold to Fuel Charging Assembly | 16-20 | 12-15 |
| Air Cleaner Housing to Vane Air Meter | 20-30 | 15-22 |
| Cast Tube to Turbocharger | 19-29 | 14-21 |
| Air Cleaner Bracket to Manifold Stud | 19-21 | 14-16 |
| Throttle Cable Bracket to Manifold | 11-13 | 8-10 |

TORQUE SPECIFICATIONS**Ranger**

| Item | N·m | in-lb |
|---|---------|-------------|
| Wing Nut | 1.7-2.8 | 15-25 |
| Stud | 7-9 | 5-7 (ft-lb) |
| Outer Shroud to Inner Shroud Retaining Nuts | 6-8 | 50-70 |
| Outer Shroud Attaching Screws | 6-8 | 50-70 |

E, F-150-250, Bronco with 5.0L Engine

| Item | N·m | in-lb |
|--|---------|-------------|
| Wing Nut | 1.7-2.8 | 15-25 |
| Stud | 8-12 | 6-8 (ft-lb) |
| Shroud Attaching Screws | 6-8 | 4-6 (ft-lb) |
| Duct and Valve Assembly Bracket Screws | 4-5.6 | 35-50 |
| Duct and Valve Assembly to Air Intake Screws | 1.3-1.7 | 12-15 |
| Air Intake to Radiator Support Screw | 4-5.6 | 35-50 |

F-150-350, Bronco with 4.9L Engine

| Item | N·m | ft-lb |
|---|---------|---------------|
| Wing Nut | 1.7-2.8 | 15-25 (in-lb) |
| Shroud Retaining Nuts | 6.3-9.6 | 55-80 (in-lb) |
| Support Bracket to Housing Screws | 8-13 | 6-9 |
| Support Bracket Mounting Nut | 30-43 | 22-32 |
| Intake Manifold Vacuum Fitting Mounting Nut | 20-32 | 15-24 |

Powertrain — Air Cleaner

TORQUE SPECIFICATIONS — CONT'D

E-150-350 with 4.9L Engine

| Item | N·m | In-Lb |
|--|-------|---------------|
| Mounting Screw | 2-3 | 20-30 |
| Air Intake Tube to Housing Screws | 3-4 | 25-35 |
| Shroud Retaining Nuts | 4-5.6 | 35-50 |
| Air Intake Tube to Lower Bracket Screw | 4-5.6 | 35-50 |
| Air Intake Tube to Radiator Support Screw | 4-5.6 | 35-50 |
| Air Intake Tube Upper Bracket Mounting Screw | 3-4 | 25-35 |
| Support Bracket to Engine Retaining Nut | 30-43 | 22-32 (Ft-Lb) |
| Support Bracket to Housing Screws | 15-21 | 11-16 |

E-250-350 with 7.5L Engine

| Item | N·m | In-Lb |
|--|-----------|-------------|
| Wing Nut | 2-3 | 15-25 |
| Stud | 8-12 | 6-8 (Ft-Lb) |
| Adapter to Housing Screws | 3-4 | 25-35 |
| Shroud Retaining Nuts | 5.64-7.90 | 50-70 |
| Air Intake to Duct and Valve Assembly Screws | 1.3-1.7 | 12-15 |
| Air Intake Bracket Screws | 4-5.6 | 35-50 |
| Air Intake to Radiator Support Screw | 4-5.6 | 35-50 |

Powertrain — Exhaust System

TORQUE SPECIFICATIONS

Exhaust System Bolts and Nuts

Unless otherwise specified, the following torque ranges are to be used for fitting or fastener diameters as indicated.

| Bolt or Nut Diameter | Torque Range |
|----------------------|-------------------------|
| 8mm | 16-23 N·m (12-17 ft-lb) |
| 10mm | 25-35 N·m (19-25 ft-lb) |
| 12mm | 34-46 N·m (34-46 ft-lb) |

Specific Applications — Ranger

| Item | Torque | |
|---|--------|---------|
| | N·m | (Ft-Lb) |
| Inlet Pipe to Exhaust Manifold | 34-46 | 25-34 |
| U-Bolt (Managed Thermactor Air [M.T.A.]) | 6.5-11 | 5-8 |
| Converter Pipe Assembly to Muffler and Outlet Pipe Assembly | 25-35 | 19-25 |
| Muffler Shield | 16-23 | 12-17 |

Specific Applications — E-, F-150-350, Bronco

| Item | Torque | |
|--|--------|---------|
| | N·m | (Ft-Lb) |
| Inlet pipe to exhaust manifold | 34-52 | 25-38 |
| U-bolt (Managed Thermactor Air (M.T.A.)) | 6.5-11 | 5-8 |
| U-bolt (inlet pipe to catalytic converter) | 49-61 | 35-45 |
| U-bolt (inlet pipe to catalytic converter) (1) (2) | 41-54 | 30-40 |
| U-bolt (catalytic converter to outlet pipe, muffler or extension pipe) | 49-61 | 35-45 |
| U-bolt (catalytic converter to outlet pipe, muffler or extension pipe) (1) (2) | 41-54 | 30-40 |
| U-bolt (inlet pipe to muffler w/o catalytic converter) (5) (6) | 49-61 | 35-45 |
| Bracket and insulator to frame | 23-33 | 17-24 |
| Bracket and insulator to frame (2) (3) (4) | 17-23 | 12-17 |
| Bracket or insulator to pipe or muffler | 23-33 | 17-24 |
| U-bolt (connecting bracket or insulator to pipe) (1) (2) (3) (4) | 17-23 | 12-17 |
| Screw attaching clamp from bracket to pipe (2) (3) (4) | 10-14 | 7-11 |

(1) E-150 — E-350 4.9L (300 CID) I-6 Engine Exhaust System

(2) E-150 — E-250 5.0L (302 CID) V-8 Engine Exhaust System

(3) E-150 — E-350 5.8L (351 CID) W-V-8 Engine Exhaust System

(4) E-150 — E-350 5.8L (351 CID) M-V-8, Engines and E-250 — E350 7.5L (460 CID) V-8, 5.8L (351 CID) Engines Exhaust Systems.

(5) Bronco — 4.9L (300 CID) I-6 Engine Exhaust System

(6) F-350 Cab Chassis — 4.9L (300 CID) I-6 Engine Exhaust System

Powertrain — Cooling System

COOLING SYSTEM DATA — ALL VEHICLES

| | |
|-----------------------------------|----------------------------|
| System Type..... | Pressurized, Series Flow |
| Radiator Type: | |
| Ranger, F-Series, Bronco..... | Crossflow, Tube & Fin |
| Econoline..... | Downflow, Tube & Fin |
| Thermostat Type, Gas Engines..... | Poppet, Pellet Activated |
| Water Pump, Gas Engines..... | Centrifugal, Prelubricated |

Cooling System Pressures

| Application | Operating Pressure kPa/Psi | Min. Test Pressure kPa/Psi |
|--------------|----------------------------|----------------------------|
| All Vehicles | 89/13 | 69/10 |

Pressure Test For Leaks (All Vehicles) 97-110kPa (14-16 Psi)

Thermostat Test (All Vehicles)

When immersed in boiling (212°F / 100°C) water, the thermostat should open more than 6.35mm (1/4 inch).

Drive Belt Tension

| Belt Width | Minimum Tension (for use at maintenance interval only) (Hot Engine) | Installation Tension | |
|-----------------|--|-------------------------------|------------------------------|
| | | Used Belt(1) | New Belt |
| 1/4" | 18 kg (40 lbs.) | 18-27 kg (40-60 lbs.) | 22.7-36.2 kg 50-80 lbs. |
| 3/8" and 15/32" | (100-130 lbs.) | 40.8-54.4 kg (90-120 lbs.) | 54.5-72.5 kg 120-160 lbs. |
| 1/2" | (110-130 lbs.) | 40.8-54.4 kg (90-120 lbs.) | 54.5-72.5 kg 120-160 lbs. |

(1) Any belt that has operated for ten minutes or more is considered a used belt.

Accessory Drive Belt Tension — Kg (Lbs) — Ranger

| Belt Type | New Installation(1) | Used Belt/Reset(2) | Allowable Minimum(3) |
|--------------------------|-----------------------|-----------------------|----------------------|
| 1/4" "V" (Air Pump Only) | 22.68-36.28 (50-90) | 18.14-27.21 (40-60) | 18.14 (40) |
| "V"-Ribbed (All Others) | 63-50-81.64 (150-190) | 58.97-72.57 (140-160) | 40.82 (90) |

(1) New installation, no run time.

(2) Used belt, more than 10 minutes of operation.

(3) When checking tension on a used belt, the tension must be above the "allowable minimum." If below minimum, it must be "Reset" (adjusted).

Powertrain — Cooling System

COOLING SYSTEM DATA — ALL VEHICLES — CONT'D

Ranger — Drive Belt Tension

| Item | | N·m | (ft-lb) |
|--|-----|-----------------------------|--------------------|
| Alternator Bracket Pivot Bolt (2.0L and 2.3L) | | 61-78 | 45-57 |
| Alternator Bracket Pivot Bolt (2.8L) | | 33-54 | 24-40 |
| Alternator Belt (2.8L) | (1) | New 533-711 Used 489-578 | 120-160 110-130 |
| Alternator Belt (2.0L and 2.3L) | (1) | New 667-845 Used 622-711 | 150-190 140-160 |

(1) Used Belt, more than 10 minutes.

Powertrain — Cooling System

ACCESSORY DRIVE BELT TENSION — E-, F-150-350, BRONCO

| Belt Tension | New — Newtons (Pounds) | Used (Over 10 Min. Operated) — Newtons (Pounds) |
|--|----------------------------|---|
| Thermactor 4.9L (300 CID) w/o A/C | 400-577N (90-130 Lbs.) | 355-444N (80-100 Lbs.) |
| Thermactor — All Except 4.9L (300 CID) w/o A/C | 400-578N (90-130 Lbs.) | 356-445N (80-100 Lbs.) |
| A/C Compressor, Power Steering, Alternator | 534-711N (120-160 Lbs.) | 489-578N (110-130 Lbs.) |

Torque Specifications

Ranger

| Description | N·m | (ft-lb) |
|---|-----------|---------------|
| Radiator Hose Clamp Double Wire Clamp | 2.26-3.39 | (20-30 in-lb) |
| Thermostat Housing | 17-20 | (12-15) |
| Radiator Top Brackets to Radiator Support | 11-14 | (8-11) |
| Radiator Support to Frame Insulator Bolts | 41-47 | (30-35) |
| Clutch to Water Pump Pulley | 19-27 | (14-20) |
| Fan to Water Pump | 4.5-5.8 | (6.2-7.9) |
| Shroud to Radiator | 3.0-4.4 | (4-6) |
| Water Filter Hose Clip to Air Inlet Housing | 3/8-16 | 28-33 |
| Water Filter Hose Clip to Engine Idler Gear Cover | 3/8-16 | 40-48 |
| Transmission Oil Line Fitting to Radiator | 24-31 | (18-23) |
| Transmission Oil Line Nut to Fitting on Radiator | 17-24 | (12-18) |
| Clutch to Water Pump Adapter Fan to Clutch | 6-8 | (50-70 lb-in) |

Powertrain — Cooling System

TORQUE SPECIFICATIONS — CONT'D

E-, F-150-350 Bronco

| Description | N·m | (ft-lb) |
|---|-----------|---------------|
| Radiator to Body Sheet Metal — E-150-E-350 | 14-20 | (10-15) |
| Radiator Hose Clamp Double Wire Clamp — Bronco, F-150-F-350, E-150-E-350 | 2.26-3.39 | (20-30 in-lb) |
| Radiator Hose Clamps Radial Screw — F-150-F-250 and Bronco | 1.80-2.71 | (16-24 in-lb) |
| Thermostat Housing 4.9L (300 CID) Six | 17-20 | (12-15) |
| V-8 Engines except 7.5L (460 CID) 7.5L (460 CID) | 17-24 | (12-18) |
| Radiator Top Brackets to Radiator Support — F-150-F-350 and Bronco | 11-14 | (8-11) |
| Radiator Support to Frame Insulator Bolts | 41-47 | (30-35) |
| Fan to Water Pump — Bronco, E-150-E-350, F-150-350 (Except 6.9L Diesel) | 17-24 | (12-18) |
| Fan to Clutch (6.9L Diesel) | 24 | (18) |
| Clutch/Fan Assembly to Water Pump (6.9L Diesel) | 41 | (30) |
| Shroud to Radiator — F-150-F-350, Bronco, E-150-E-350 | 7-10 | (5-8) |
| Water Filter Hose Clip to Air Inlet Housing | 3/8-16 | 28-33 |
| Water Filter Hose Clip to Engine Idler Gear Cover | 3/8-16 | 40-48 |
| Transmission Oil Line Fitting to Radiator — F-150-F-350 and Bronco | 24-31 | (18-23) |
| Transmission Oil Line Nut to Fitting on Radiator — F-150-F-350 and Bronco | 17-24 | (12-18) |

Powertrain — Starting System

POSITIVE ENGAGEMENT STARTER — ALL VEHICLES

| Positive Engagement Starter Motor | | | | Starter Brushes | | | | Through Bolt Torque N·m (in-lb) | Mounting Bolt Torque N·m (ft-lb) |
|-------------------------------------|---|---------------------------------------|---------------------------------|-------------------------------|------------------------------|----------------------------------|----------------------|---------------------------------|----------------------------------|
| Dia. mm (Inches) | Current Draw Under Normal Load (Amps) | Normal Engine Cranking Speed (rpm) | Current Draw No. Load (Amps) | Mfg. Length mm (Inches) | Wear Limit mm (Inches) | Spring Tension kg (Ounces) | | | |
| 101.60 (4) and 114.30 (4-1/2) | 50-180 | 150-290 | 80 | 12.2 (0.50) | 6.35 (0.25) | 1.134 (80) | 6.21-8.47 (55-75) | 21-27 (15-20) | |

Maximum Commutator runout is 0.1270mm (0.005 inch). Maximum starting circuit voltage drop (battery positive terminal to starter terminal) at normal engine temperature is 0.5 volt.

Torque Specifications

| | |
|------------------------------|-------------------------|
| Starter Mounting Bolts | 21-27 N·m (15-20 ft-lb) |
| Through Bolts | 6-8 N·m (55-75 in-lb) |

Positive Engagement Starter — 6.9L Diesel Engine

| Positive Engagement Starter Motor | | | | Starter Brushes | | | | Through Bolt Torque N·m (in-lb) | Mounting Bolt Torque N·m (ft-lb) |
|-----------------------------------|---|---------------------------------------|---------------------------------|-------------------------------|------------------------------|----------------------------------|--------------------|---------------------------------|----------------------------------|
| Dia. mm (Inches) | Current Draw Under Normal Load (Amps) | Normal Engine Cranking Speed (rpm) | Current Draw No. Load (Amps) | Mfg. Length mm (Inches) | Wear Limit mm (Inches) | Spring Tension kg (Ounces) | | | |
| 114 (4.5) | 430-530 | 170-230 | 120-200 | 19.0 (0.75) | 6.0 (0.24) | 1.4 (50) | 6.2-9.6 (55-85) | 20-27 (15-20) | |

Electrical Systems — Charging System

BATTERY DISCHARGE RATES — ALL VEHICLES

| Capacity Test Battery Discharge Rates | |
|--|-----------------------------|
| Battery Capacity (Amperes) | Discharge Rate (Amperes) |
| 36 Maintenance-Free | 155 |
| 45 Maintenance-Free | 190 |
| * 48 Maintenance-Free | 205 |
| 54 Maintenance-Free | 225 |
| 63 Maintenance-Free | 260 |
| 68 Maintenance-Free | 235 |
| 83 Maintenance-Free | 350 |
| * 77 Conventional Batt. | 225 |
| 81 Conventional Batt. | 175 |

*Passenger car batteries not used in light trucks.

Battery Voltage Test Specifications — All Vehicles

| Capacity Test Voltage Readings for Good Battery | |
|--|-----------------|
| Approximate Temperature | Minimum Voltage |
| 70°F (21°C) | 9.6 |
| 60°F (15°C) | 9.5 |
| 50°F (10°C) | 9.4 |
| 40°F (4°C) | 9.3 |
| 30°F (-1°C) | 9.1 |
| 19°F (-7°C) | 8.9 |
| 10°F (-12°C) | 8.7 |
| 0°F (-18°C) | 8.5 |

Electrical Systems — Charging System

SERVICE SPECIFICATIONS — CONT'D

Alternator-Side Terminal — E-, F-150-350, Bronco

| Rating | | Field Current Amps @ 12V | Stamp Color | Slip Ring Turning mm (Inches) | | Brush Length mm (Inches) | |
|---------------|-------------|-----------------------------|-------------|-------------------------------------|----------------|-----------------------------|------------|
| Amperes @ 15V | Watts @ 15V | | | Min. Dia. | Max. Runout | ** New | Wear Limit |
| 70 | 1050 | 4.25 | Black | 31 (1.22) | .0127 (0.0005) | 12.19 (.480) | 6.35 (1/4) |
| 100 | 1500 | 4.25 | Red | 31 (1.22) | .0127 (0.0005) | 12.19 (.480) | 6.35 (1/4) |

** Add .635mm (.025 inch) for positive brush length.

Torque Specifications

| Item | N·m | In-Lb |
|--|-------------------------|----------------|
| Alternator Adjuster Bolt | 6.8-10.1 | 60-90 (Ft-Lb) |
| Alternator Pivot Bolt | Rear Terminal | 61-77 |
| | Side Terminal | 61-77 |
| Wiring Assembly Retaining Nut | 7-10 | 60-90 |
| Bearing Retainer Attaching Screws | 3-4-5 | 25-40 |
| Pulley Nut | 82-135 | 60-100 (Ft-Lb) |
| Brush Holder Attaching Screws | 2-3 | 17-25 |
| Insulators — Rear Terminal | Stator Terminal (black) | 3-4 |
| | Battery Terminal (red) | 3-6 |
| | Field Terminal (orange) | 3-4 |
| Insulators — Side Terminal | Battery Terminal | 4-6 |
| | Ground Terminal | 3-4 |
| Housing Through Bolts — Rear Terminal | 4-7 | 35-60 |
| Rectifier Attaching Screws — Side Terminal | 5-7 | 40-50 |

Electrical Systems — Lighting System

LIGHT BULB SPECIFICATIONS — RANGER

| Lamp Description | Number of Bulbs Required | Trade Number |
|--|--------------------------|--------------|
| A/C Control Illumination (Optional) | 1 | 161 |
| A/C Control Pushbutton (Optional) | 1 | 8605 |
| Charge Indicator Light | 1 | 194 |
| AM, AM-FM or AM/FM/MPX Radio Dial Illumination | 1 | 1893 |
| AM/FM/MPX Tape Dial Illumination | 2 | (1) |
| Stereo Indicator Lamp | 1 | (1) |
| Ashtray Light | 1 | 1892 |
| Back-Up Light | 2 | 1156 |
| Brake Warning Light | 1 | 194 |
| Cargo Light (Optional) | 1 | 912 |
| Charging System Warning | 1 | 194 |
| Dome Light | 1 | 912 |
| Engine Coolant Temperature Warning | 1 | 194 |
| Fasten Seat Belt Warning Light | 1 | 194 |
| Front Parking Light and Turn Signal | 2 | 1157 |
| Front Side Marker Light | 2 | 194 |
| Glove Compartment Light | 1 | 1891 |
| Headlamps(3) | 2 | H6054 |
| Headlight Switch Illumination | 1 | 1815 |
| Heater Control Illumination | 1 | 161 |
| Hi-Beam Indicator | 1 | 194 |
| Instrument Panel Gauge Illumination | 5 | 194 |
| Instrument Panel Courtesy Light | 2 | 89 |
| License Plate Light w/o Bumper | 1 | 97 |
| License Plate Light — RPO Rear Bumper | 2 | 194 |
| Transfer Case Lock Indicator Light | 1 | (2) |
| Oil Pressure Indicator Light | 1 | 194 |
| Rear Tail/Stop/Turn Light | 2 | 1157 |
| Turn Signal Indicator Light | 2 | 194 |
| Overhead Console Map Light | 1 | 1816 |
| Emissions Maintenance Warning Light | 1 | 194 |
| 4x4 Indicator Light | 1 | 194 |
| Upshift Indicator Light | 1 | 194 |

- (1) Replaceable at Ford authorized radio service centers.
 (2) Use Ford Part Number E27B-10C915-B.
 (3) Substitution of headlamp bulbs other than the original equipment or equivalent may result in a false warning or no warning in the Graphic Display Warning Indicator System.

Electrical Systems — Lighting System

LIGHT BULB SPECIFICATIONS — F-150-350

| Lamp Description | Number of Bulbs Required | Trade Number |
|--|--------------------------|--------------|
| A/C Control Illumination (Optional) | 1 | 161 |
| Charge Indicator Light | 1 | 194 |
| AM, AM-FM or AM/FM/MPX Radio Dial Illumination | 1 | 1893 |
| AM/FM/MPX Tape Dial Illumination | 2 | (5) |
| Stereo Indicator Lamp | 1 | (5) |
| Ash Tray Light | 1 | 1892 |
| Back-Up Light | 2 | 1156 |
| Brake Warning Light | 1 | 194 |
| Cargo Light (Optional) | 1 | 912 |
| Clearance Fender (Styleside w/Dual Rear Wheels) | 4 | 194 |
| Clearance Front | 2 | 194 |
| Dome Light | 1 | 912 |
| Fasten Seat Belt Warning Light | 1 | 194 |
| Front Parking Light and Turn Signal | 2 | 1157 |
| Front Side Marker Light | 2 | 194 |
| Glove Compartment Light | 1 | 1891 |
| Headlamps | 2 | H6054 |
| Headlight Switch and Wipe/Wash Switch Illumination | 1 | 1815 |
| Heater Control Illumination | 1 | 161 |
| Hi-Beam Indicator | 1 | 194 |
| Identification Front | 3 | 194 |
| Identification Rear (Styleside w/Dual Rear Wheels) | 3 | 194 |
| Instrument Panel Gauge Illumination | 5 | 194 |
| Instrument Panel Courtesy Light | 2 | 89 |
| License Plate Light Styleside | 1 | 97 |
| License Plate Light — RPO Rear Bumper (Styleside) | 2 | 194 |
| Transfer Case Lock Indicator Light | 1 | 194 |
| Map/Dome Light (Optional) Dome | 1 | 912 |
| Map | 2 | 105 |
| Movable Underhood Lamp (Optional) | 1 | 90 |
| Oil Pressure Indicator Light | 1 | 194 |
| Rear Tail/Stop/Turn Light | 2 | 1157 |
| Roof Marker Lights | 5 | 194 |
| Turn Signal Indicator Light | 2 | 194 |
| Maintenance Warning Light | 1 | 194 |

(5) Replaceable at Ford authorized radio service centers.

* D42B-13465-A bulb.

Electrical Systems — Lighting System

LIGHT BULB SPECIFICATIONS — BRONCO II

| Lamp Description | Number of Bulbs Required | Trade Number |
|--|--------------------------|--------------|
| A/C Control Illumination (Optional) | 1 | 161 |
| A/C Control Pushbutton | 1 | 8605 |
| Charge Indicator Light | 1 | 194 |
| AM, AM-FM or AM/FM/MPX Radio Dial Illumination | 1 | 1893 |
| AM/FM/MPX Tape Dial Illumination | 2 | (1) |
| Stereo Indicator Lamp | 1 | (1) |
| Ashtray Light | 1 | 1892 |
| Back-Up Light | 2 | 1156 |
| Brake Warning Light | 1 | 194 |
| Cargo Light (Optional) | 1 | 906 |
| Charging System Warning | 1 | 194 |
| Dome Light | 1 | 912 |
| Engine Coolant Temperature Warning | 1 | 194 |
| 4x4 Indicator Light | 1 | 194 |
| Emission Maintenance Warning Light | 1 | 194 |
| Fasten Seat Belt Warning Light | 1 | 194 |
| Front Parking Light and Turn Signal | 2 | 1157 |
| Front Side Marker Light | 2 | 194 |
| Glove Compartment Light | 1 | 1891 |
| Headlamps | 2 | H6054 |
| Headlight Switch Illumination | 1 | 1815 |
| Heater Control Illumination | 1 | 161 |
| Hi-Beam Indicator | 1 | 194 |
| Instrument Panel Gauge Illumination | 5 | 194 |
| Instrument Panel Courtesy Light | 2 | 89 |
| License Plate Light — RPO Rear Bumper | 2 | 194 |
| Transfer Case Lock Indicator Light | 1 | (2) |
| Oil Pressure Indicator Light | 1 | 194 |
| Rear Tail/Stop/Turn Light | 2 | 1157 |
| Turn Signal Indicator Light | 2 | 194 |

(1) Replaceable at Ford authorized radio service centers.

(2) Use Ford Part Number E27B-10C915-B.

Electrical Systems — Lighting System

LIGHT BULB SPECIFICATIONS — E-150-350

| Lamp Description | No. of Bulbs | Lamp Trade No. |
|---|--------------|----------------|
| A/C Control Illumination | 1 | 161 |
| Alternator Indicator Light | 1 | 194 (5) |
| AM, AM-FM OR AM/FM/MPX Radio Dial Illumination | 1 | 1893 |
| AM/FM/MPX Tape Dial Illumination | 2 | (9) |
| Stereo Indicator Light | 1 | (9) |
| Automatic Transmission Gear Selector Dial Non-Tilt Column | 1 | 161 |
| Tilt Column | 1 | 1445(6) |
| Back-up Lights | 2 | 1156 |
| Brake Warning Light | 1 | 912 (5) |
| Cargo Light | 1 | 561 (1) |
| Dome Light (Standard) | 1 | 561 |
| Fasten Seat Belt Warning Light | 1 | 194 (5) |
| Front Side Marker Lights | 2 | 194 |
| Headlights (Hi and Lo Beam) | 2 | H6054 (8) |
| Headlight Switch and Wipe/Wash Switch Illumination | 1 | 194 |

NOTES:

- (1) Trade Number 912 for Optional Cargo Light — Chateau Club Wagon
- (2) Standard
- (3) With air conditioning
- (4) Ford Part B8E-13465-A
- (5) Ford Part C8MB-13465-B
- (6) Heavy Duty
- (7) Replace with Ford Part No. D20Z-18C622-A (Bulb is an integral part of assembly)
- (8) Standard Halogen Headlamps E1EB-13007-AA
- (9) Replaceable at Ford authorized radio service center

Electrical Systems — Lighting System

LIGHT BULB SPECIFICATIONS — E-150-350 — CONT'D

| Lamp Description | No. of Bulbs | Lamp Trade No. |
|---|--------------|----------------|
| Heater Control Illumination | 1 | 161 |
| Hi-Beam Indicator Light | 1 | 194 (5) |
| Headlight Switch Illumination | 1 | 1893 |
| Instrument Panel Gauge Illumination | 2 | 194 (5) |
| License Plate Light | 2 | 194 |
| Map/Dome Light | Dome Map | 912 105 |
| Map Pocket Courtesy Lamp | 2 | 214-2 |
| Oil Pressure Indicator Light | 1 | 194 (5) |
| Rear Side Marker Lights | 2 | 194 (5) |
| Rear Tail, Stop, and Turn Signal Lights | 2 | 1157 |
| School Bus Flasher Indicator Light | 1 | 2162 |
| School Bus Warning Lights | 4 | 4640 |
| Turn Signal Indicator Lights | 2 | 194 (5) |
| Wiper/Washer Switch Illumination | 1 | 1893 (3) |
| Prem. Sound On/Off Indicator Lamp Assy. | 1 | (7) |

NOTES:

- (1) Trade Number 912 for Optional Car-go Light — Chateau Club Wagon
- (2) Standard
- (3) With air conditioning
- (4) Ford Part B8E-13465-A
- (5) Ford Part C8MB-13465-B
- (6) Heavy Duty
- (7) Replace with Ford Part No. D20Z-18C622-A (Bulb is an integral part of assembly)
- (8) Standard Halogen Headlamps E1EB-13007-AA
- (9) Replaceable at Ford authorized radio service center

Electrical Systems — Lighting System

TORQUE SPECIFICATIONS

Ranger

| Item | N·m | In-Lb |
|------------------------------------|-----|-------|
| Headlamp Attaching Screws | 2-3 | 18-24 |
| Turn Signal Switch Mounting Screws | 2-3 | 18-24 |

E-, F-150-350, Bronco

| Item | N·m | In-Lb |
|--|-------|---------------|
| Fog Lamp Retaining Nuts (F-150-350, Bronco) | 28-40 | 20-30 (Ft-Lb) |
| Roof Marker Lamp Attaching Screws (F-150-350) | 1-2 | 10-20 |
| Turn Signal Lever (All) | 1-2 | 10-20 |
| Dome and Cargo Lamp Attaching Screws (E-150-350) | 2-3 | 16-23 |

Electrical Systems — Instrument Clusters

SPEEDOMETER

Calibration Specifications

| SPEEDOMETER HEAD ACCURACY AT 70°F | | | |
|-----------------------------------|----------|-----------|-----------|
| Basic Head Indication | 12 mph | 36 mph | 72 mph |
| Speedometer Head Input RPM | 200 | 600 | 1200 |
| Speed Indication Limits (mph) | 9.7-14.3 | 35.2-40.2 | 72.7-77.7 |

Torque Specifications

Without Speed Control

Cable Assembly to Transmission Retaining Screw —

| | |
|---------------------------------|-----------------------|
| Ranger, F-150-350, Bronco | 2-3 N·m (20-25 in-lb) |
| E-150-350..... | 4-6 N·m (36-54 in-lb) |

With Speed Control

Speedometer Cable to Speed Sensor (Upper and Lower)..... 3-5 N·m (30-40 in-lb)

Electrical Instrument Components

Electrical Specifications — All Vehicles

Shift Indicator Lamp (4.9L Engine with Manual Transmission).....

Comes on when engine speed greater than 900 RPM and engine vacuum greater than 5" Hg at part throttle.

Fuel, Oil Pressure, Temperature

| | |
|--|------------------|
| Gauges Bench Test..... | 10-14 ohms |
| Auxiliary Fuel Tank Selector Valve Actuation | 9.5 volts (min.) |

Electrical Systems — Instrument Clusters

ELECTRICAL INSTRUMENT COMPONENTS — CONT'D

Torque Specifications — All Vehicles

| Item | N·m | ft-lb |
|---|---|---------------|
| Fuel Sender and Gasket Locking Ring (E, F-150-350, Bronco) | Rotate Clockwise until tab between Detent and Stop. | |
| Oil Pressure Switch/Sender | 11-24 | 8-18 |
| Oil Pressure Sender Fitting (Ranger) | 11-24 | 8-18 |
| Temperature Sender | 11-24 | 8-18 |
| Ignition Switch Mounting Nuts (E, F-150-350, Bronco) | 4.5-7.3 | 40-65 (in-lb) |
| Ignition Switch Mounting Bolts (Ranger)(1) | 4-6 | 35-50 (in-lb) |

(1) Tighten until bolt heads shear off. Torque value is approximate.

11. Filter & Cleaner Pressure (OCA-1) in Appendix.

| Circuit | Description | Spec |
|---|--|-----------------|
| Headlamps | Headlamps-Lighting Switch | 40-65 (in-lb) |
| Windshield | Wiper Motor Safety | 100 in.-Foot/Lb |
| Turn Signals | Turn Signal Lamp | 100 in.-Foot/Lb |
| Braking System and Front Wheel Fwd. | Left Master Brake Slave Valve Mounting | 100 in.-Foot/Lb |
| Ignition System and Front Wheel Fwd. | LH. Front Master Valve Mounting | 100 in.-Foot/Lb |
| Steering Column | Steering Motor Safety nut-Lock Nut | 100 in.-Foot/Lb |

Electrical Systems — Circuit Protectors and Relays

RANGER

Fuse Panel

ACCESSORY FEED, SPEED CONTROL, 4x4 INDICATOR,
CONSOLE MAP LIGHT, WARNING DISPLAY CIRCUIT
15 AMP. FUSE

WINDSHIELD WIPER AND WASHER
6 AMP. C.B.

STOP LAMPS, EMERGENCY
WARNING LAMPS 15 AMP. FUSE

SPARE FUSE
HOLDER

TURN SIGNAL FLASHER,
BACK-UP LAMPS
15 AMP. FUSE

TAIL LAMPS, PARKING LAMPS
LICENSE LAMP, HEADLIGHTS
ON WARNING BUZZER

HEATER AND A/C
BLOWER MOTOR
A/C CLUTCH
30 AMP. FUSE

COURTESY,
DOME GLOVE BOX AND
UNDER HOOD LAMPS,
CLOCK, KEY WARNING
AND HEADLAMP ON
WARNING BUZZERS 15
AMP. FUSE

RADIO
10 AMP. FUSE

CIGARETTE LIGHTER, HORMS
20 AMP. FUSE

TURN SIGNAL
FLASHER

FUEL TANK SELECTOR, CONSOLE MAP
LIGHT, WARNING DISPLAY CIRCUIT
10 AMP. FUSE

POWER WINDOWS
20 AMP BREAKER

WARNING LAMPS; BRAKE
INDICATOR, OIL PRESSURE LP,
WATER TEMP. LP, SEATBELT
WARNING LAMP AND BUZZER
CARBURETOR VENT SOLENOID
15 AMP. FUSE

INSTRUMENT PANEL LAMPS;
CLUSTER, CLIMATE CONTROL,
ASHTRAY AND RADIO
ILLUMINATION 5 AMP. FUSE

Electrical Systems — Circuit Protectors and Relays

CIRCUIT PROTECTION

| Circuit | Location | Protective Device(1) |
|--|---------------------|----------------------|
| A/C Clutch | Fuse Panel | 15 Amp. |
| Air Conditioner and/or Heater Comb. | Fuse Panel | 30 Amp. |
| Alternator | Starter Motor Relay | 16 Gauge Fuse Link |
| Alternator | Electric Choke | 20 Gauge Fuse Link |
| Aux. Fuel Tank Solenoid | Fuse Panel | 10 Amp. |
| Back-up Lamps and Turn Signals | Fuse Panel | 15 Amp. |
| Cigar Lighter, Horns | Fuse Panel | 20 Amp. |
| Dome, Courtesy, Clock and Glove Box Lamp | Fuse Panel | 15 Amp. |
| Headlamps | Headlamp Switch | 18 Amp. C.B. |
| Heater | Fuse Panel | 30 Amp. |
| Instrument Panel Lamps, Auto. Trans., Floor Shift Illumination | Fuse Panel | 5 Amp. |
| Radio | Fuse Panel | 10 Amp. |
| Stop and Emergency Flasher Lamps | Fuse Panel | 20 Amp. |
| Tail, Parking, License Lamps | Fuse Panel | 15 Amp. |
| Trailer Tow | Starter Relay | 16 Gauge Fuse Link |
| Warning Lamps | Fuse Panel | 15 Amp. |
| Windshield Wiper | Fuse Panel | C.B. 6 Amp. |

(1) Fuse or Circuit Breaker (C.B.) in Amperes.

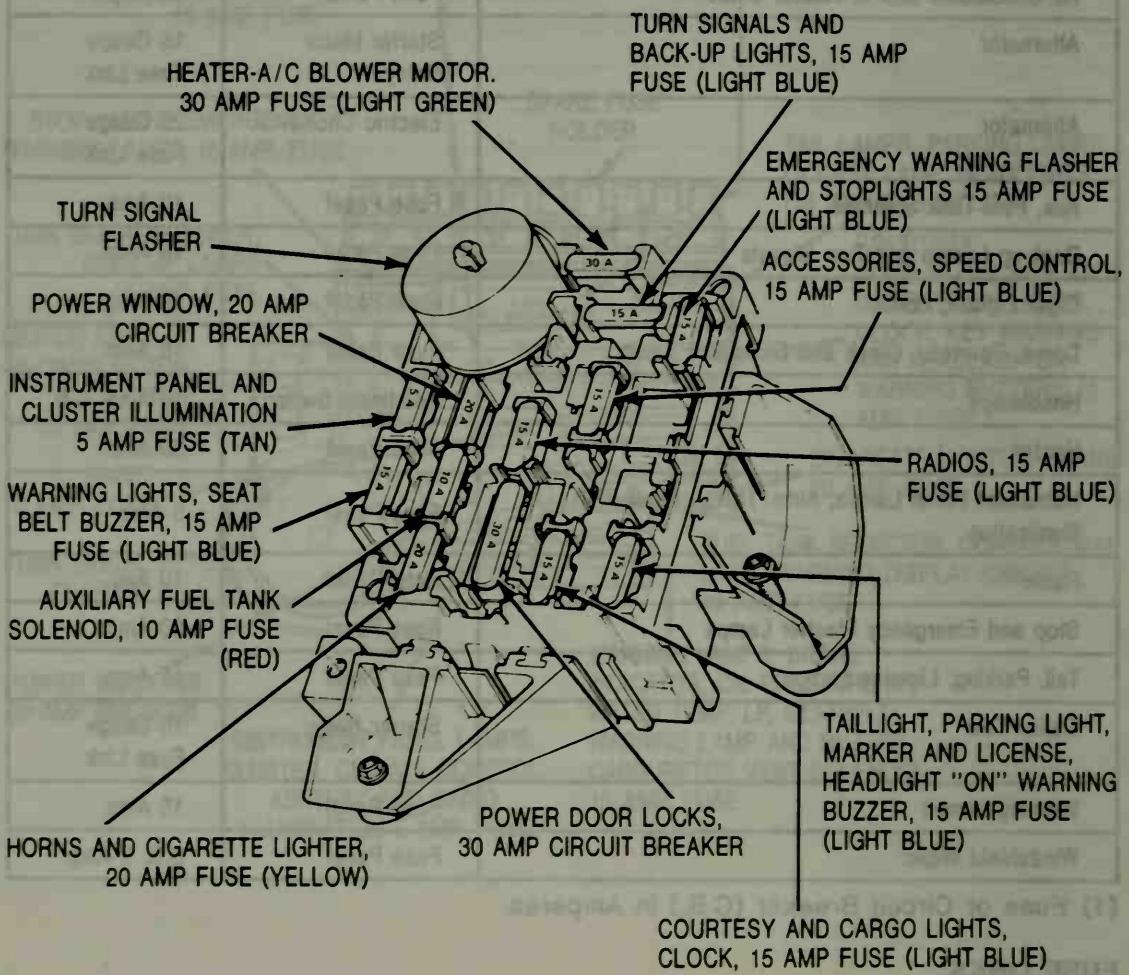
FUSE LINKS

| Circuit | Location | Type |
|-------------------------------------|--|------------------|
| Headlamps | Integral with Lighting Switch | 22 Amp C.B. |
| Alternator | Starter Motor Relay | 16 Ga. Fuse Link |
| Trailer Lamps | Starter Motor Relay | 16 Ga. Fuse Link |
| Headlamp Switch and Fuse Panel Feed | L.H. Fender Apron Near Voltage Regulator | 16 Ga. Fuse Link |
| Ignition Switch and Fuse Panel Feed | L.H. Fender Apron Near Voltage Regulator | 16 Ga. Fuse Link |
| Trailer Brakes | Starter Motor Relay and Junction Block | 16 Ga. Fuse Link |

Electrical Systems — Circuit Protectors and Relays

FUSE PANEL

F-150-350

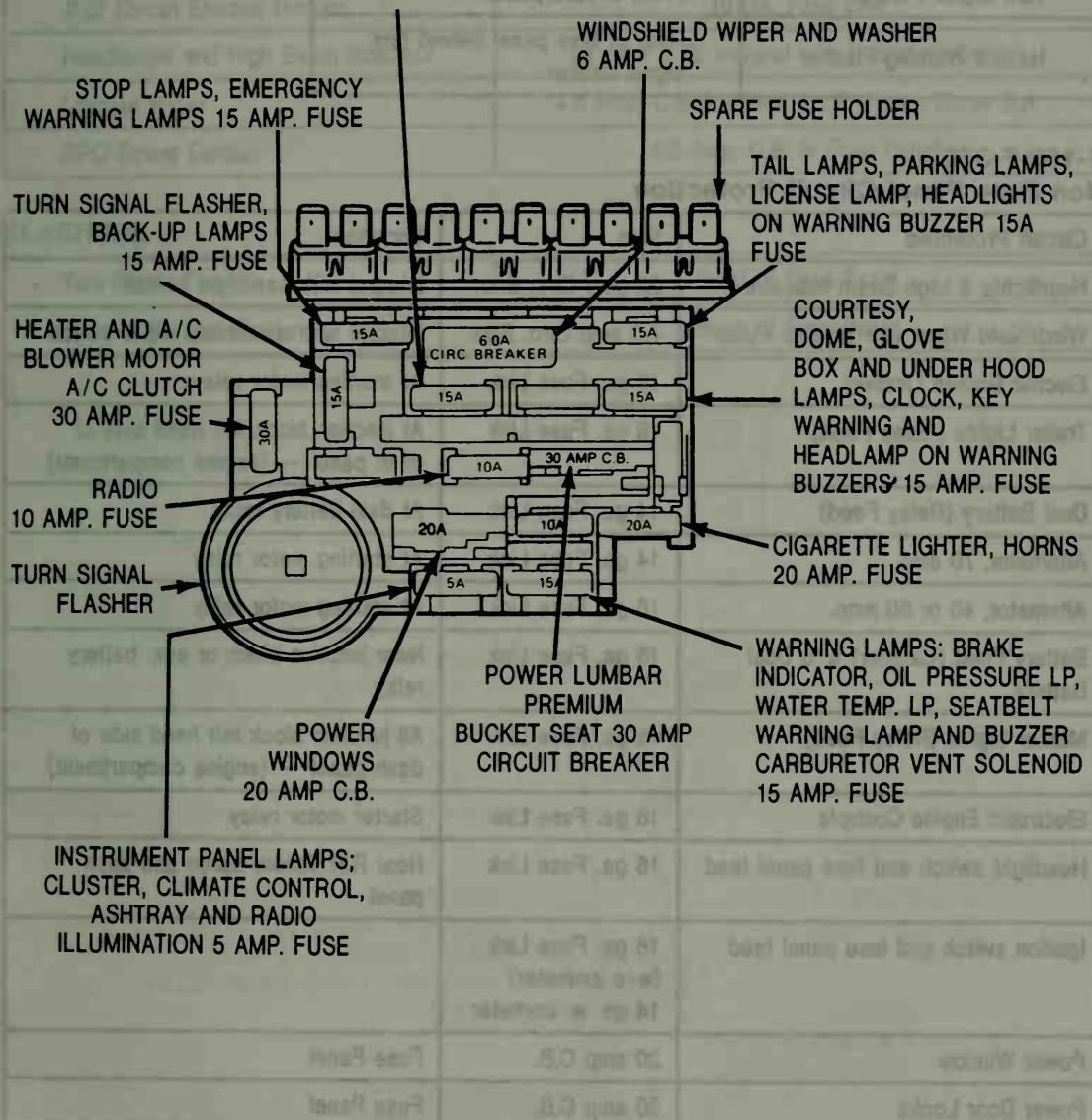


Electrical Systems — Circuit Protectors and Relays

FUSE PANEL

Bronco II

ACCESSORY FEED, SPEED CONTROL, 4x4 INDICATOR
15 AMP. FUSE HEATED BACKLIGHT RELAY.
REAR WINDSHIELD WIPER.



Electrical Systems — Circuit Protectors and Relays

FUSE PANEL — CONT'D

Bronco II

| Flasher | Location |
|------------------------|---|
| Turn Signal Flasher | Front of fuse panel |
| Hazard Warning Flasher | Rear of fuse panel behind turn signal flasher |

F-150-F-350

Non Fuse Panel Circuit Protection

| Circuit Protected | Size | Location |
|--|---|--|
| Headlights & High Beam Indicator | 22 amp Circ. Brkr. | Integral with headlight switch |
| Windshield Wiper and Washer Pump | 7.0 amp Circ. Brkr. | Integral with windshield wiper switch |
| Electric Brakes (Trailer) | 16 ga. Fuse Link | At starting motor relay |
| Trailer Lights (Relay Feed) | 16 ga. Fuse Link | At junction block left hand side of dash panel — (engine compartment) |
| Dual Battery (Relay Feed) | 14 ga. Fuse Link | At dual battery relay |
| Alternator, 70 amp. | 14 ga. Fuse Link | At starting motor relay |
| Alternator, 40 or 60 amp. | 16 ga. Fuse Link | At starting motor relay |
| Battery Feed (Camper) w/o Dual Battery | 16 ga. Fuse Link | Near junction block or aux. battery relay |
| Marker Lights (Relay Feed) | 18 ga. Fuse Link | All junction block left hand side of dash panel — (engine compartment) |
| Electronic Engine Controls | 18 ga. Fuse Link | Starter motor relay |
| Headlight switch and fuse panel feed | 16 ga. Fuse Link | Near R.H. fender apron and dash panel |
| Ignition switch and fuse panel feed | 16 ga. Fuse Link (w/o ammeter) 14 ga. w/ammeter | |
| Power Window | 20 amp C.B. | Fuse Panel |
| Power Door Locks | 30 amp C.B. | Fuse Panel |

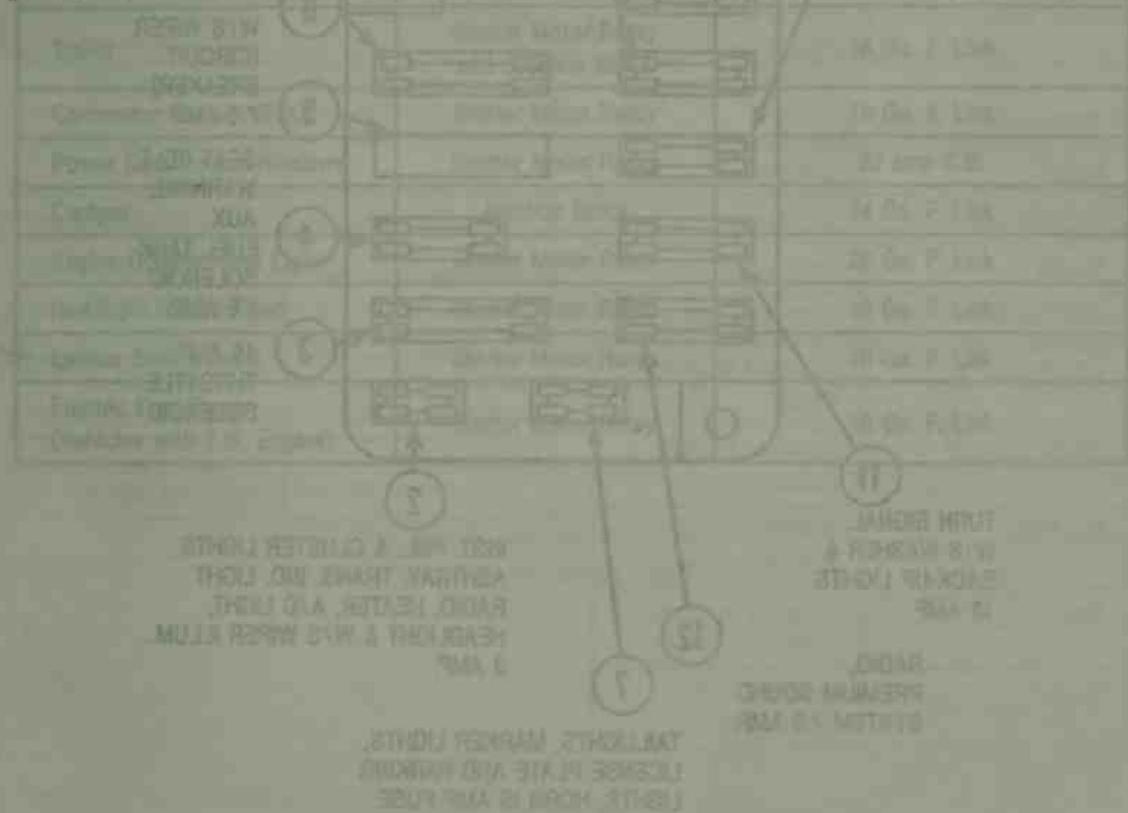
Electrical Systems — Circuit Protectors and Relays

FUSE LINKS AND CIRCUIT BREAKERS — Bronco II

| Circuit | Protective Device |
|-----------------------------------|---|
| #38 Circuit Alternator | 16 Ga. Fuse Link |
| #37 Circuit Trailer Lamps | 16 Ga. Fuse Link at Starter Motor Relay |
| #22 Circuit Electric Brakes | 16 Ga. Fuse Link |
| Headlamps and High Beam Indicator | 22 Amp. C.B. Integral with Headlamp Switch |
| Liftgate Wiper | 4.5 Amp. C.B. Located in I.P. Above Glove Box |
| RPO Power Lumbar | 30 Amp. C.B. in Fuse Panel |

FLASHERS

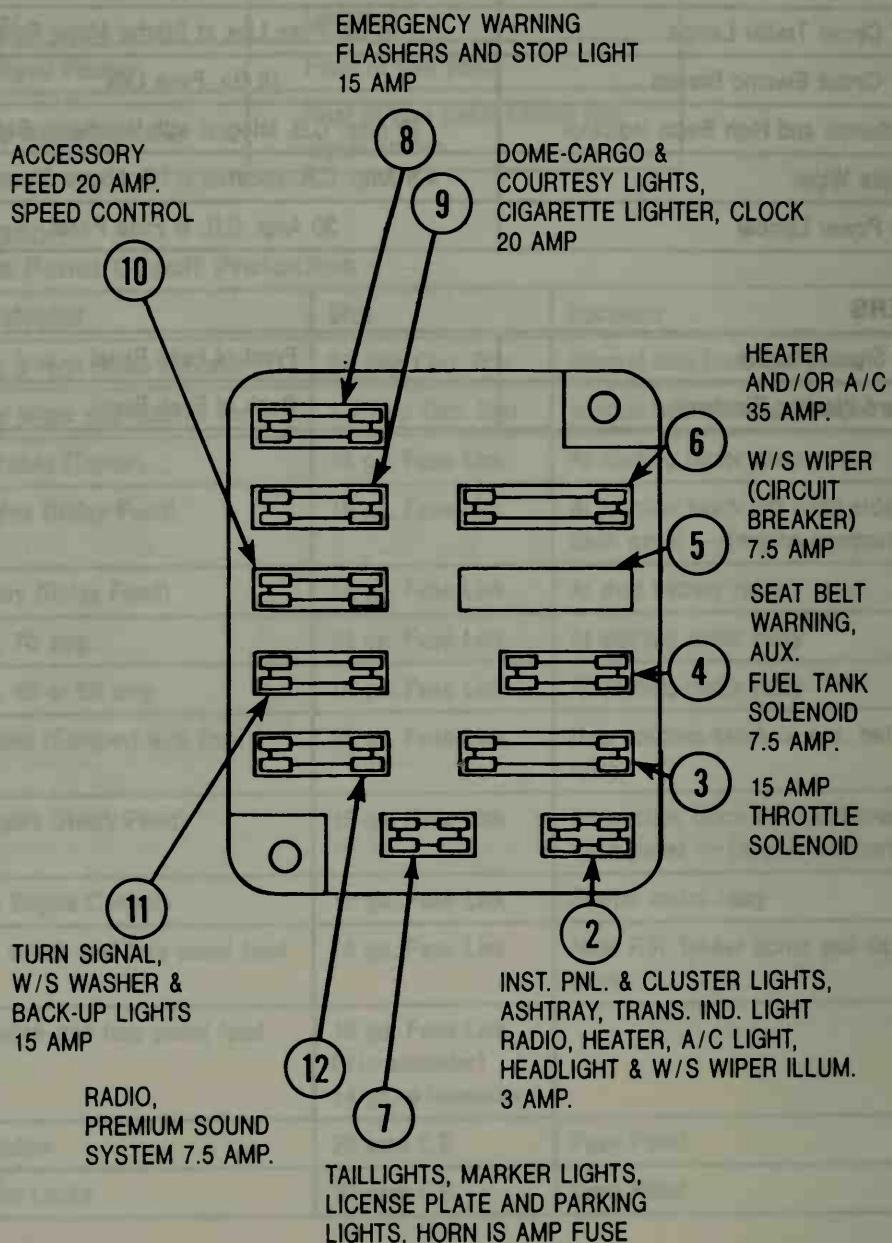
| | |
|------------------------|---------------------|
| Turn Signal Flasher | Front of Fuse Panel |
| Hazard Warning Flasher | Back of Fuse Panel |



Electrical Systems — Circuit Protectors and Relays

FUSE PANEL

E-150-350



Electrical Systems — Circuit Protectors and Relays

NON-FUSE PANEL FUSES, CIRCUIT BREAKERS AND FUSE LINKS

E-150-350

| Circuit Protected | Location | Size |
|---|---|----------------|
| Headlights | Integral w/Lighting Switch | 22 amp C.B. |
| Auxiliary Battery | Starter Motor Relay | 14 Ga. F. Link |
| Auxiliary Heater and/or A/C | Junction Block or Aux. Battery Relay | 18 Ga. F. Link |
| Alternator | Starter Motor Relay (For 40, 60, 65 amp Alternators) | 16 Ga. F. Link |
| Alternator | Starter Motor Relay (For 70, 100 amp Alternators) | 14 Ga. F. Link |
| Electric Choke | Choke Wiring Assembly | 20 Ga. F. Link |
| Trailer | Starter Motor Relay and Junction Block | 16 Ga. F. Link |
| Carburetor Circuits (EEC) | Starter Motor Relay | 18 Ga. F. Link |
| Power Door Locks/Windows | Starter Motor Relay | 20 amp C.B. |
| Camper | Junction Block | 14 Ga. F. Link |
| Engine Compartment Light | Starter Motor Relay | 20 Ga. F. Link |
| Headlight Switch Feed | Starter Motor Relay | 18 Ga. F. Link |
| Ignition Switch Feed | Starter Motor Relay | 16 Ga. F. Link |
| Electric Fuel Pump (Vehicles with 7.5L Engine) | Starter Motor Relay | 16 Ga. F. Link |

Electrical Systems — Circuit Protectors and Relays

FLASHERS

E-150-350 — Cont'd

| Flashers | Location |
|------------------------|--|
| Turn Signal Flasher | Attached to lower reinforcement of instrument panel on L.H. side of steering column. |
| Hazard Warning Flasher | Taped to main wiring assembly in lower L.H. corner of instrument panel. |

Relays

Ranger

| Relay | Location |
|----------------|----------------------------|
| Starter | RH Fender Apron |
| Trailer Lights | Top of LH Radiator Support |

F-150-F-350, Bronco

| Relay | Location |
|-------------------|------------------------------------|
| Auxiliary Battery | LH Side Dash Panel |
| Starter | RH Fender Apron |
| EEC Power | RH Fender Apron |
| Camper Lights | Attached to Dash Panel |
| Trailer Lights | Attached to Dash Panel |
| Fog Lights | Behind LH Side of Instrument Panel |
| Horn | Mounted on Speed Control Amplifier |
| Choke | Near RH Front Wheel Well |

E-150-E-350

| Relay | Location |
|-------------------------------|-------------------------------------|
| Auxiliary Battery | LH Front Fender |
| EEC Power | Attached to Top of RH Fender Apron |
| Starter | RH Front Fender |
| Power Door Lock | Lower LH Cowl Near Fuse Block |
| Power Door Unlock | Lower LH Cowl Near Fuse Block |
| Horn | Attached to Speed Control Amplifier |
| Auxiliary Heater — A/C Blower | LH Corner Engine Compartment |
| Trailer Lights | LH Rear Fender Below LH Taillight |

Electrical Systems — Accessories

RADIOS

Electrical Specifications

| RADIO USED | SPECIFICATION NUMBER |
|--------------------|----------------------|
| AM | ES-ESAF-19A198-AA |
| AM/FM MPX | ES-ESAF-19A198-AA |
| AM/FM MPX TAPE | ES-ESAF-19A198-AA |
| ELECT. AM/FM/CASS. | ES-ESVF-18B827-AA |

All of the above radios must conform to their specific general specifications with the following parameters:

Antenna Pre-Trim 95 pf
Dummy Antenna 15 pf series
Rated Power Output 4 Watts per channel into a 3.2 ohm load
Operating Temperature -29°C(-20.2°F) to +60°C(140°F)
Vibration 30 min. @ 5 g's Horizontal Mount

Rated power output of/Elect. stereo 6 watts (front), 12 watts (rear) per channel into a 3.2Ω (front) & 6.0Ω (rear) load.

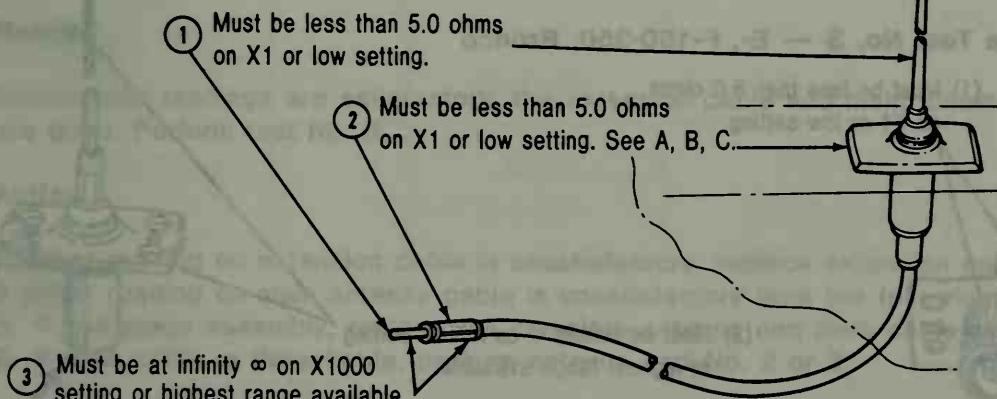
Torque Specifications

Radio Chassis Support Retaining Nut 2.5-4 N·m (22-35 in-lb)
Radio Side X7Tg Brackets (Mtr) 2.5-4 N·m (22-35 in-lb)

Antennas

With antenna installed on vehicle and cable unplugged from radio, perform the following resistance tests with an ohmmeter. Probes must contact antenna at points specified by arrowheads.

Antenna Test No. 1 — All Vehicles



Results

If ohmmeter tests are satisfactory — the antenna is good.

Action

If any ohmmeter reading is unsatisfactory take the following action:

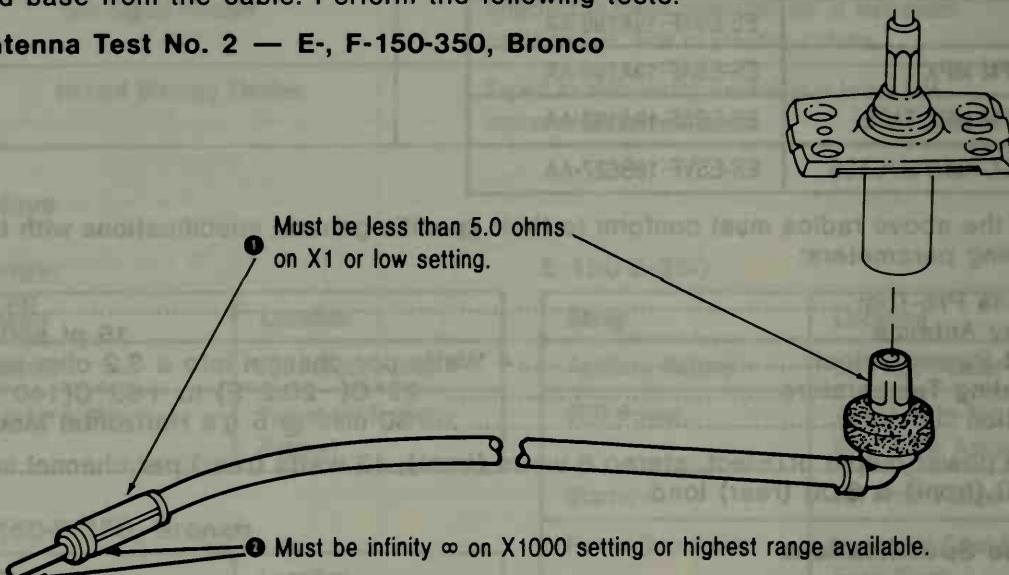
- If one piece assembly, replace the complete antenna and cable assembly.
- If detachable cable and mast, perform antenna test No. 2 and 3.
- If manual antenna with extension cable, perform antenna test No. 4.

ANTENNAS — CONT'D

Testing Antenna Equipped with Detachable Cable and Mast.

When results in Test No. 1 have been unsatisfactory, disconnect the antenna mast and base from the cable. Perform the following tests:

Antenna Test No. 2 — E-, F-150-350, Bronco



Results

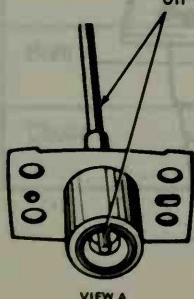
If ohmmeter readings are satisfactory, the cable is good. Perform antenna test no. 3.

Action

If either reading is unsatisfactory, replace the cable.

Antenna Test No. 3 — E-, F-150-350, Bronco

- (1) Must be less than 5.0 ohms on X1 or low setting.



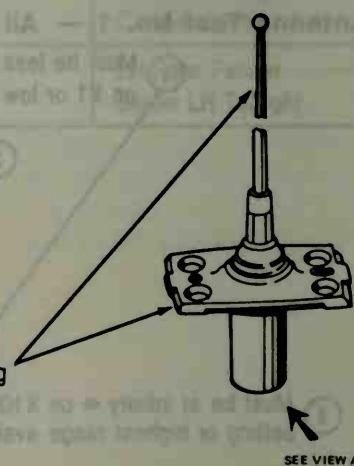
Results

If ohmmeter readings are satisfactory, antenna mast and base are good, replace cable.

Action

If either reading is unsatisfactory, replace only the base assembly, the mast should be good.

- (2) Must be infinity ∞ on X1000 setting or highest range available.



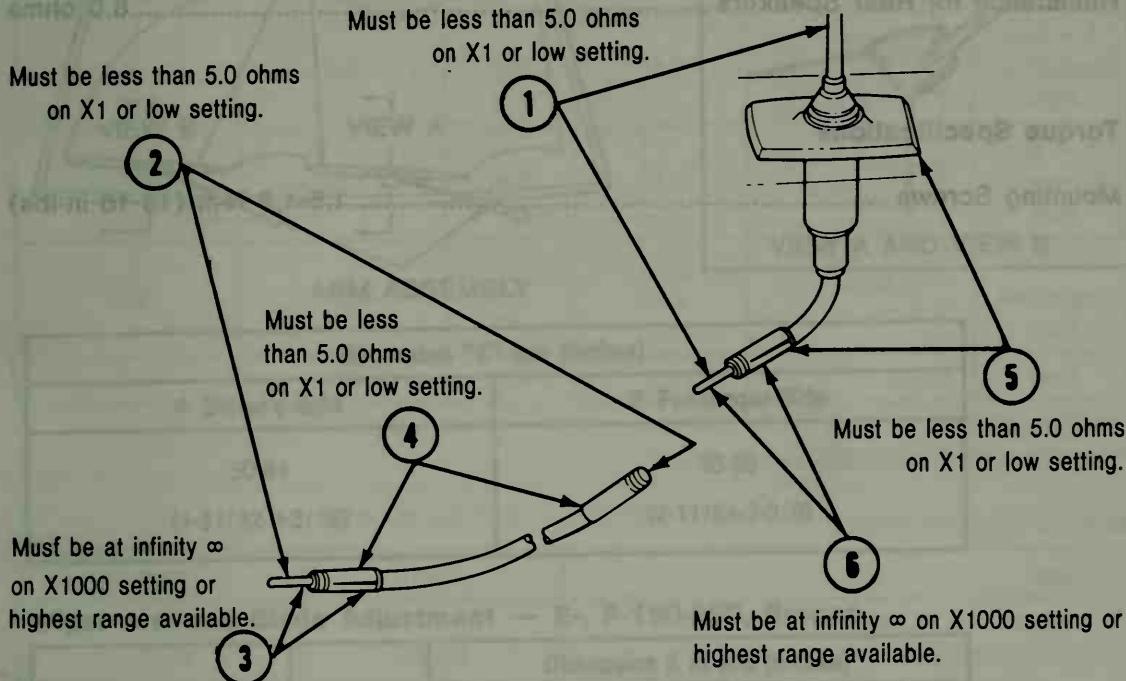
SEE VIEW A

ANTENNAS — CONT'D

Testing Antenna With Extension Cable

When results in test No. 2 have been unsatisfactory, disconnect extension cable from main cable. Perform the following tests:

Antenna Test No. 4 — E-, F-150-350, Bronco



Results

If ohmmeter readings are satisfactory, the extension cable and main antenna cable are good. Perform test No. 3.

Action

If either reading on extension cable is unsatisfactory, replace extension cable. If either reading on main antenna cable is unsatisfactory take the following action:
A. If one piece assembly, replace the complete antenna and main cable assembly.
B. If main cable is detachable, perform antenna test No. 2 or 3.

Antenna Specifications

Cable must conform to ES D3AA 18828-AA

Base must conform to ES D3AA 18828-AB

Torque Specifications

| | |
|-------------|--------------------------------|
| Mast..... | 3.4-3.6 N·m (2.51-2.66 Ft-lbs) |
| Screws..... | 2.4-5.0 N·m (1.77-3.69 Ft-lbs) |

SPEAKERS — CONT'D

ANTENNAS — CONT'D

Service Specifications

F-150-350, Bronco, Ranger

Resistance for Instrument Panel and Door Speakers 3.2 ohms

Antenna Test No. 2 — E, F-150-350, Bronco

Bronco

Resistance for Rear Speakers

6.0 ohms

Torque Specifications

Mounting Screws 1.5-1.9 N·m (13-16 in-lbs)

Results

If ohmmeter reading is satisfactory, the cable is good.

Action

If either reading is unsatisfactory, replace the cable.

Antenna Test No. 3 — E, F-150-350, Bronco

(1) Must be less than 5.0 ohms.

If ohmmeter readings are satisfactory, the antenna cable is good.

(2) If either reading is unsatisfactory, replace the antenna cable.

A. If one place assembly, replace antenna cable No. 5 or 8.

B. If both cables are satisfactory, replace antenna cable No. 5 or 8.

Results

If ohmmeter readings are satisfactory, the antenna cable is good.

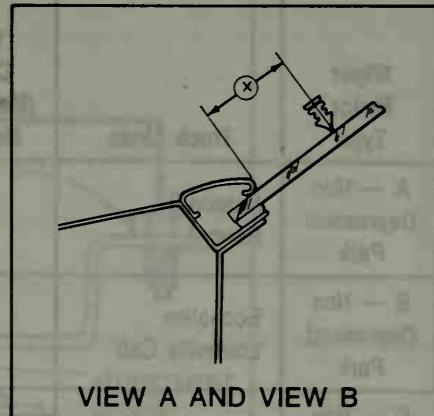
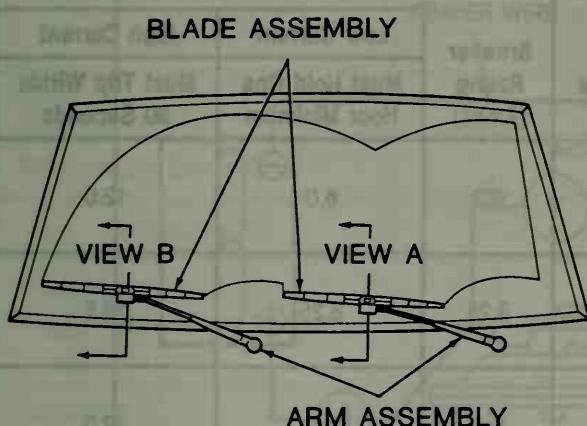
Action

(edi-F-150-350, S-150, S-150-350) If one place assembly, replace only the base assembly; the mast must be replaced.

(edi-F-150-350, S-150, S-150-350) If both cables are satisfactory, replace only the antenna cable.

WINDSHIELD WIPERS

Wiper Arm and Blade Adjustment — Ranger/Bronco II

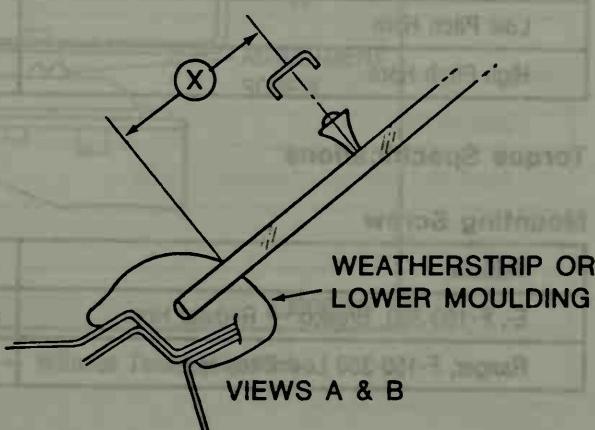
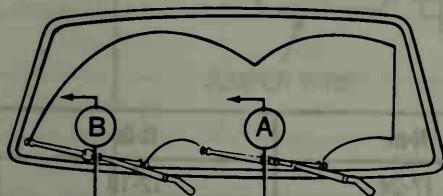


Dimension "X" mm (inches)

| A Driver's Side | B Passenger Side |
|---------------------------|--------------------------|
| 50-81 (1-31/32-3-3/16) | 55-86 (2-11/64-3-3/8) |

Wiper Arm and Blade Adjustment — E-, F-150-350, Bronco

| Vehicle | View | Dimension X in mm (inches) | |
|------------------|------|----------------------------|-----------------------|
| | | A Driver's Side | Passenger Side B |
| E-150 — E-350 | 1 | 70-107 (2.75-4.25) | 83-120 (3.25-4.75) |
| F-Series, Bronco | 1 | 62-93 (2.40-3.70) | 62-93 (2.40-3.70) |



Electrical Systems — Accessories

WINDSHIELD WIPERS — CONT'D

Windshield Wiper Motor and Switch Test Current Limits

| Wiper Motor Type | Truck Lines | Motor Current (Max. Amps No Load) | Breaker Rating (Amps) | Breaker Test Amperes** | |
|------------------------|-----------------------------|-----------------------------------|-----------------------|----------------------------|-----------------------------|
| | | | | Low Current | High Current |
| | | | | Must Hold One Hour Minimum | Must Trip Within 30 Seconds |
| A — Non Depressed Park | Bronco II Ranger | 2.5* | 6.0 | 6.0 | 12.0 |
| B — Non Depressed Park | Econoline Louisville Cab | 3.5* | 8.25 | 8.25 | 16.5 |
| C — Non Depressed Park | Lt. & Med. Truck, Bronco | 2.5* | 6.0 | 6.0 | 12.0 |
| Rear | Bronco II | 1.5 | 4.5 | 4.5 | 9.0 |

*High speed

**At 75 ± 5°F ambient temperature

Torque Specifications

| Item | N·m | in-lb |
|---|----------|--------|
| Wiper Motor Attaching Screws Ranger, Bronco II | 6.8-9.6 | 60-85 |
| E-, F-150-350, Bronco | 6.8-9.6 | 60-85 |
| Pivot Shaft Nuts | 9.9-12.5 | 88-110 |

Horns

Electrical Specifications

| Item | Current Draw (Amps) | Frequency (Hz) |
|-----------------|---------------------|----------------|
| Low Pitch Horn | 4.2-6.2 | 340-370 |
| High Pitch Horn | 4.5-6.5 | 430-460 |

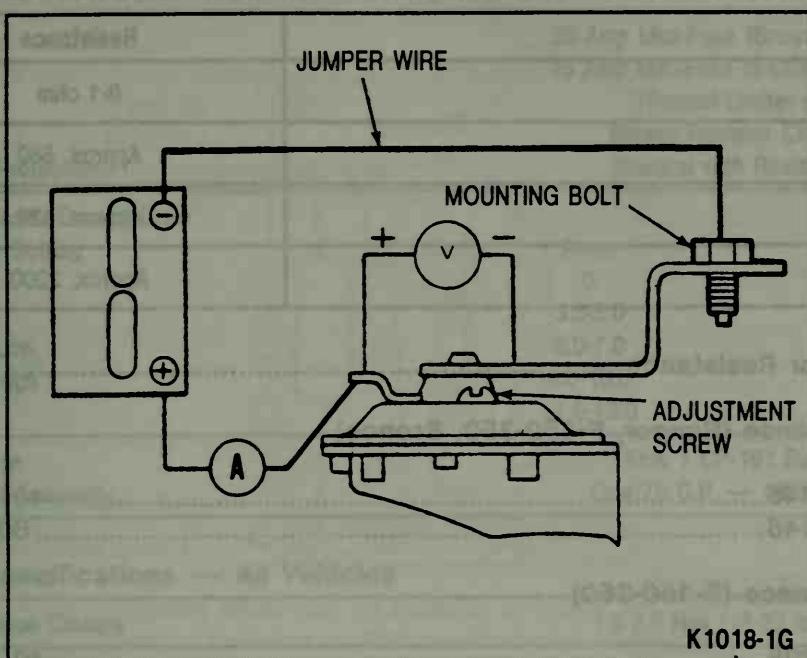
Torque Specifications

Mounting Screw

| Vehicle | N·m | ft-lb |
|--------------------------------------|-------|-------|
| E-, F-150-350, Bronco — Regular Horn | 17-24 | 12-18 |
| Ranger, F-150-350 Low Pitch Horn | 10-12 | 7.5-9 |

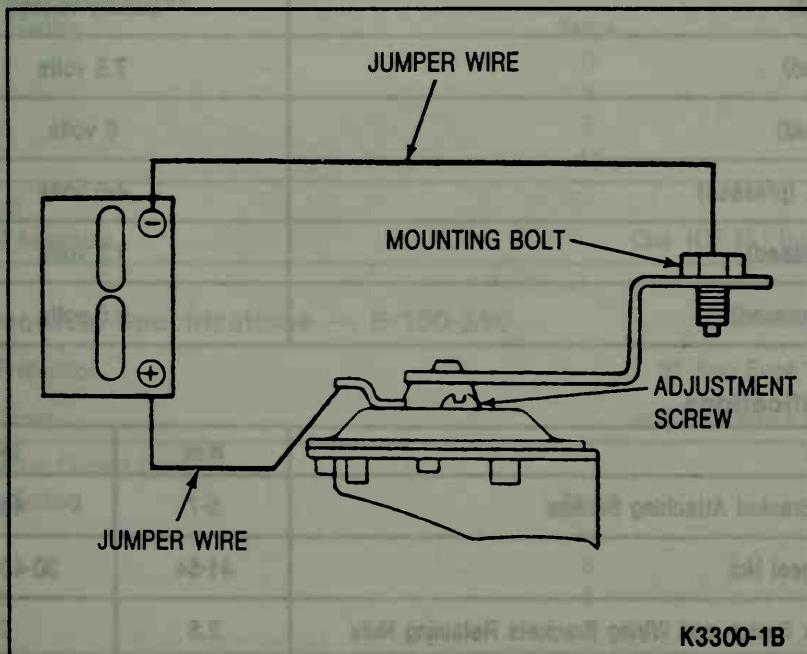
HORN CURRENT DRAW TEST

MET2X2-10RTH00-K23393



Horn Current Test — With Test Equipment

K1018-1G



Horn Current Draw Test — Without Test Equipment

K3300-1B

Electrical Systems — Accessories

SPEED CONTROL SYSTEM

Control Switches Resistance

| Switch | Resistance |
|-----------|--------------|
| OFF | 0-1 ohm |
| SET/ACCEL | Approx. 680 |
| COAST | Approx. 120 |
| RESUME | Approx. 2200 |

Speed Sensor Resistance..... 40 ohms

Servo Resistance (Ranger, F-150-350, Bronco)

Circuits 144-145..... 40-125 ohms
Circuits 144-146..... 60-90 ohms

Servo Resistance (E-150-350)

Circuits 734-825..... 40-125 ohms
Circuits 734-826..... 60-190 ohms

Circuit Voltage

| Switch | Voltage |
|---------------------|-----------------|
| ON (pressed) | battery voltage |
| ON (released) | 7.8 volts |
| OFF (pressed) | 0 volts |
| SET/ACCEL (pressed) | 4-5 volts |
| COAST (pressed) | 1.5 volts |
| RESUME (pressed) | 6.5 volts |

Torque Specifications

| Description | N·m | in-lb |
|---|-------|---------------|
| Servo and Bracket Attaching Screws | 5-7 | 43-61 |
| Steering Wheel Nut | 41-54 | 30-40 (ft-lb) |
| (1) Amplifier Switch and Wiring Brackets Retaining Nuts | 2.5 | 22 |

Climate Control Systems — Heater Only

SERVICE SPECIFICATIONS

Heater Electrical Specifications — Ranger/Bronco II

| | | |
|---------------------------|--|-------|
| System Protection | 30 Amp Mini-Fuse (Brown-Orange) 15 Amp Mini-Fuse in Clutch Circuit Thermal Limiter in Blower Resistor Circuit (Integral with Resistor) | |
| Blower Motor Current Draw | | |
| Switch Setting | Amps | Volts |
| Off | 0 | 0 |
| Low | 3.0-5.0 | 5.1 |
| Med. Low | 5.0-7.0 | 7.6 |
| Med. High | 8.5-10.0 | 10.4 |
| High | 11.5-13.0 | 13.4 |
| Illumination | One 1 CP-161 Bulb | |
| Control Assembly | One 75 C.P. — 1982 Bulb | |

Torque Specifications — All Vehicles

| | |
|--------------------|----------------------------|
| Heater Hose Clamps | 1.8-2.5 N·m (16-22 In-Lbs) |
|--------------------|----------------------------|

Heater Electrical Specifications — F-150-350, Bronco

| | | |
|---------------------------|--------------------------------|-------|
| System Protection | 30 Amp Mini-Fuse (Light Green) | |
| Blower Circuit | in Panel | |
| Blower Motor Current Draw | | |
| Switch Setting | Amps | Volts |
| Off | 0 | 0 |
| Low | 5 | 5 |
| Medium | 7 | 6 |
| High | 11 | 9 |
| Illumination | One 1CP-161 Bulb | |
| Control Assembly | | |

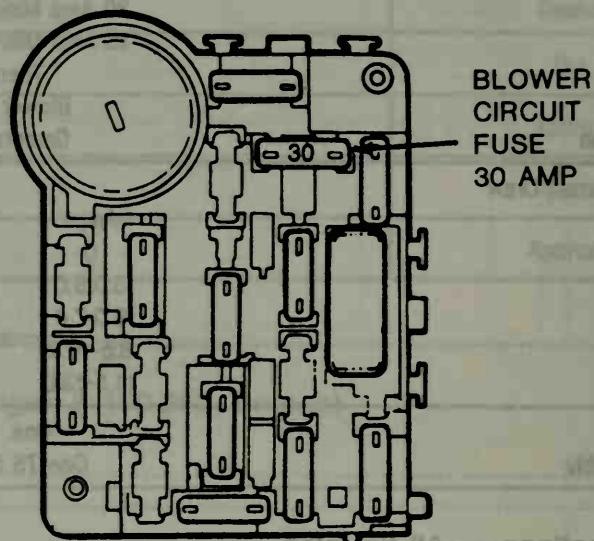
Heater Electrical Specifications — E-150-350

| | | |
|---------------------------|-------------------|-------|
| System Protection | 35 Amp Fuse | |
| Blower Circuit | in Fuse Panel F-6 | |
| Blower Motor Current Draw | | |
| Switch Setting | Amps | Volts |
| Off | — | — |
| Low | 3 | 7 |
| Medium | 4 | 9 |
| High | 8 | 13.5 |
| Illumination | One 1CP-161 Bulb | |
| Control Assembly | | |

Climate Control Systems — Heater Only

F-150 — F-350 and Bronco

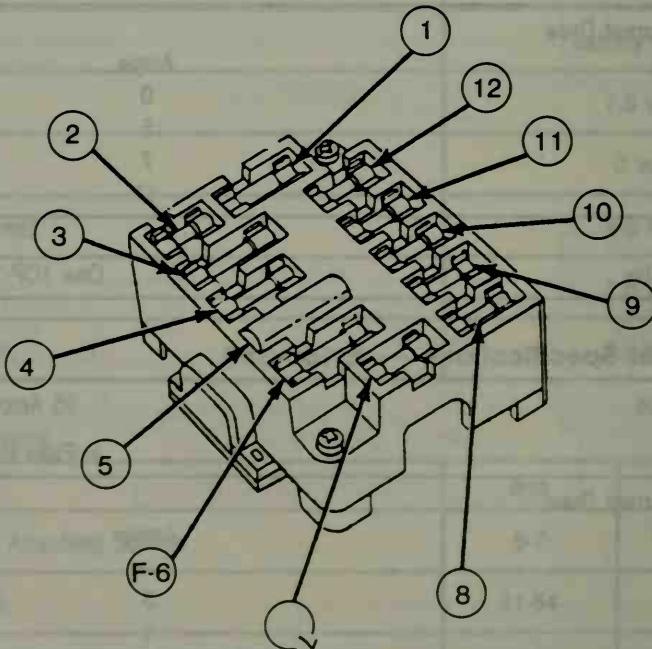
SERVICE SPECIFICATIONS



The fuse panel is located on the dash panel in passenger compartment left of steering column.

CL3513-2B

E-150 — E-350



The fuse panel is located on the dash panel in passenger compartment left of the steering column.

CL3400-2B

Climate Control Systems — A/C, Heater

SERVICE SPECIFICATIONS

Refrigerant System Specifications — Ranger

| | |
|--|---|
| Refrigerant System Control Pressure Switch (Clutch Cycling) | Close Maximum 52 psi Open Minimum 23 psi |
| High Pressure Relief Valve (Located on Compressor Discharge Manifold) | Opens 3103kPa (450 psi) |
| Capacity | 2-1/2 Lbs. Plus 1/4 Lb. Minus 0 40 Oz. Plus 4 Oz. Minus 0 1.13 Kg. Plus .11 Kg. Minus 0 |
| Type | Dichlorodifluoromethane CCL ² F ² |
| Refrigerant 12 (R-12) ESA-M17B2A | Ford D4AZ-19B519-A Motorcraft YN1-A 14 Oz. Can YN-7 30 Lb. Container |

Refrigerant System Specifications — F-150-350, Bronco

| | |
|--|---|
| Refrigerant System Control Pressure Switch (Clutch Cycling) | Close Maximum 52 psi Open Minimum 23 psi |
| High Pressure Relief Valve (Located on Compressor Discharge Manifold) | Opens 3103kPa (450 psi) |
| Capacity | 3 Lbs. Plus 1/4 Lb. Minus 0 48 Oz. Plus 4 Oz. Minus 0 1.36 Kg. Plus .11 Kg. Minus 0 |
| Type | Dichlorodifluoromethane CCL ² F ² |
| Refrigerant 12 (R-12) ESA-M17B2-A | Ford D4AZ-19B519-A Motorcraft YN1-A 14 Oz. Can YN-7 30 Lb. Container |

Refrigerant System Specifications — E-150-350

| | |
|--|--|
| Cycling Clutch Control De-Icing Switch | Close 42°F Open 28°F |
| System Protection | Opens 3103kPa (450 psi) |
| High Pressure Relief Valve (Located on Compressor Discharge Manifold) | |
| Capacity (Front System Only) | 3-1/4 Lbs. Plus 1/4 Lb. Minus 0 52 Oz. Plus 4 Oz. Minus 0 1.47 Kg. Plus .113 Kg. Minus 0 |
| (Front and Auxiliary System) | 4 Lbs. Plus 1/4 Lb. Minus 0 64 Oz. Plus 4 Oz. Minus 0 1.81 Kg. Plus .113 Kg. Minus 0 |
| Type | Dichlorodifluoromethane CCL ² F ² |
| Refrigerant 12 (R-12) ESA-M17B2A | Ford D4AZ-19B519-A Motorcraft YN1-A 14 Oz. Can YN-7 30 Lb. Container |

Climate Control Systems — A/C, Heater

SYSTEM COMPONENTS

| Vehicle | Compressor (FS-6) | Nip- pondenso 6E171 | Receiver Dehydrator | Suction Accumu- lator/ Drier | Expansion Valve | Fixed Orifice Tube | Clutch Cycling Pressure Switch | Thermo- static Switch | Evaporator Core | Service Access Gauge Part Valves |
|----------------------|----------------------|---------------------------|------------------------|---------------------------------------|--------------------|--------------------------|---|-----------------------------|--------------------|--|
| | | | | | | | | | (1) | (2) |
| Ranger/ Bronco II | X | | | X | | X | X | | X | X |
| F-150-350, Bronco | X | | | X | | X | X | | X | X |
| E-150-350 | X | X | X | | X | | | X | X | X |

(1) Fin and Tube.

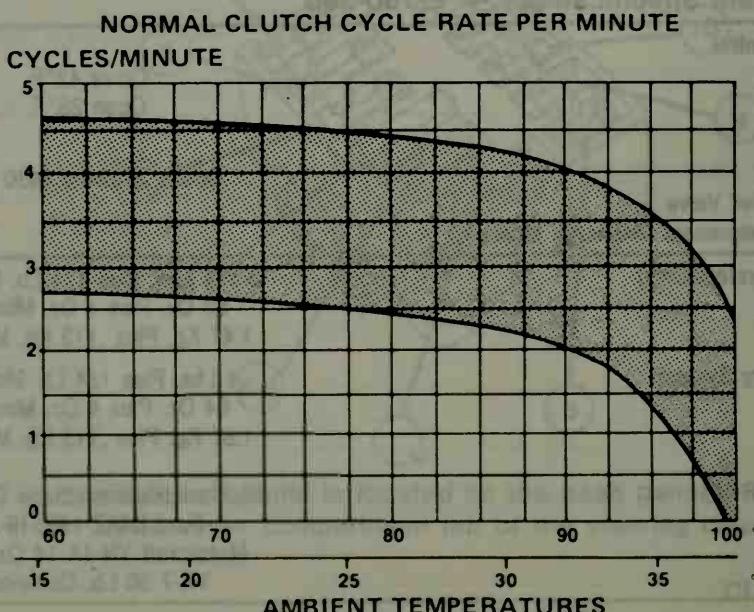
(2) "Flooded Type" Plate/Fin.

Service Specifications

Cycling Clutch Pressure/Temperature Operating Specifications — F-150-350, Bronco, Ranger, Bronco II

These conditional requirements for the fixed orifice tube cycling clutch system tests must be satisfied to obtain accurate pressure readings

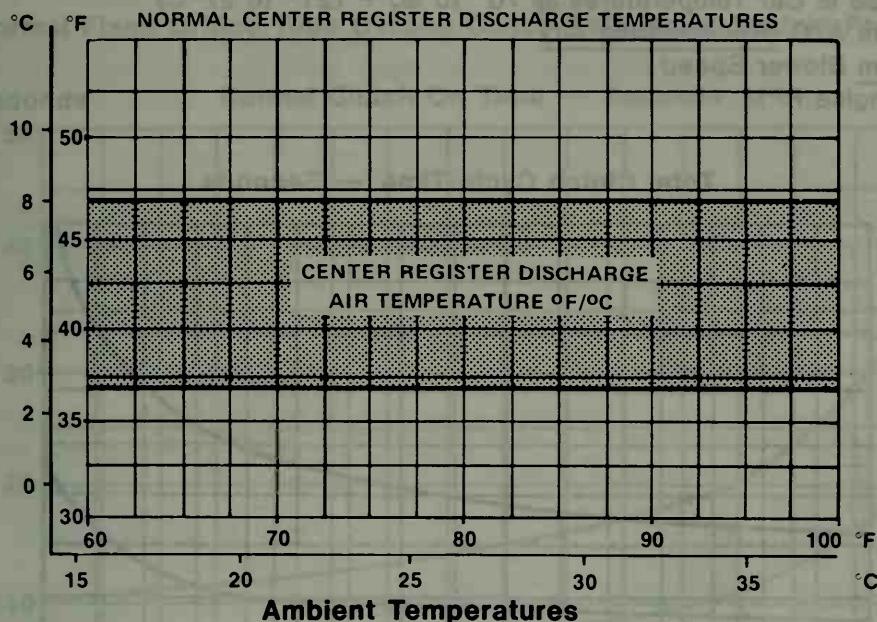
- Stabilized Pressures
- Stabilized in Vehicle Temperatures @ 70° to 80°F (21° to 27°C)
- Maximum A/C (Recirculating Air)
- Maximum Blower Speed
- 1500 Engine RPM



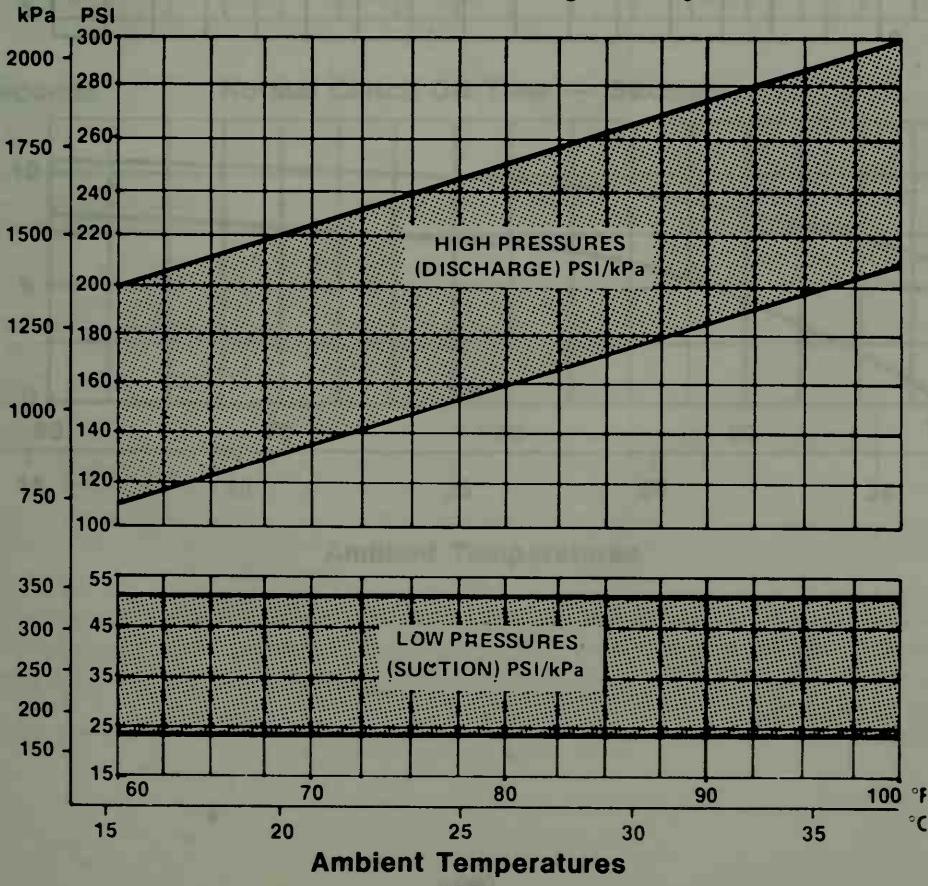
Climate Control Systems — A/C, Heater

SERVICE SPECIFICATIONS — CONT'D

Cycling Clutch Pressure/Temperature Operating Specifications — F-150-350, Bronco, Ranger, Bronco II— Cont'd



Normal Fixed Orifice Tube Cycling Clutch Refrigerant System Pressures

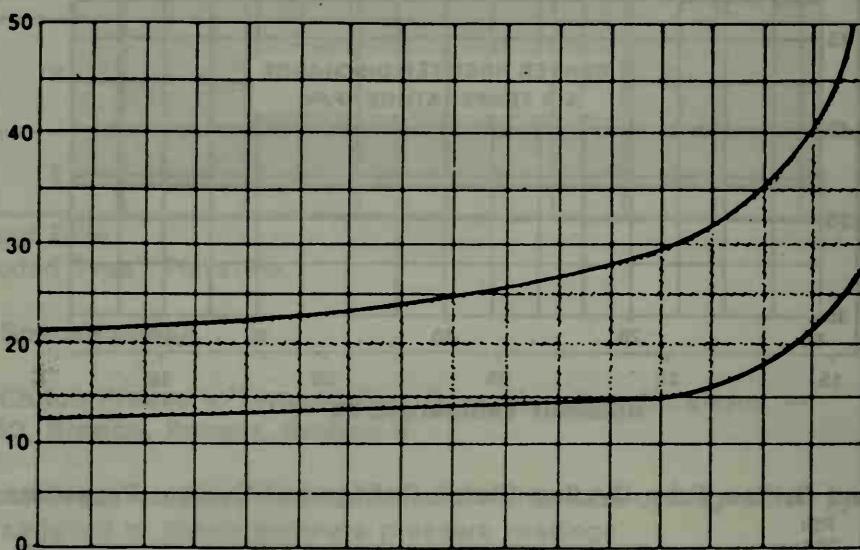


THESE CONDITIONAL REQUIREMENTS FOR THE FIXED ORIFICE TUBE CYCLING CLUTCH SYSTEM TESTS MUST BE SATISFIED TO OBTAIN ACCURATE CLUTCH CYCLE TIMING

- Stabilized Pressures
- Stabilized in Car Temperatures @ 70° to 80°F (21° to 27°C)
- Maximum A/C (Recirculating Air)
- Maximum Blower Speed
- 1500 Engine RPM

Seconds

Total Clutch Cycle Time — Seconds

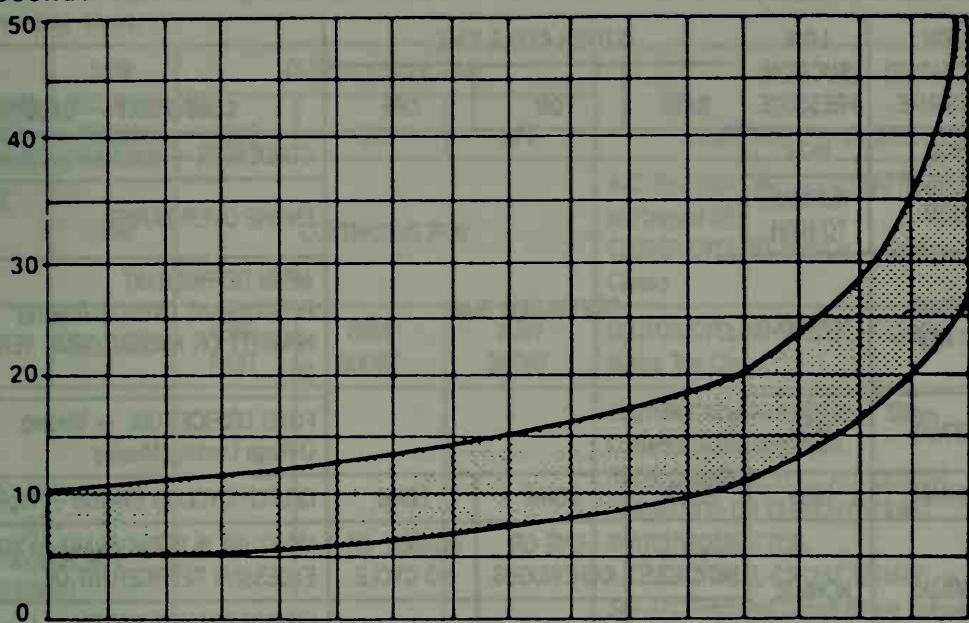


SERVICE SPECIFICATIONS — CONT'D

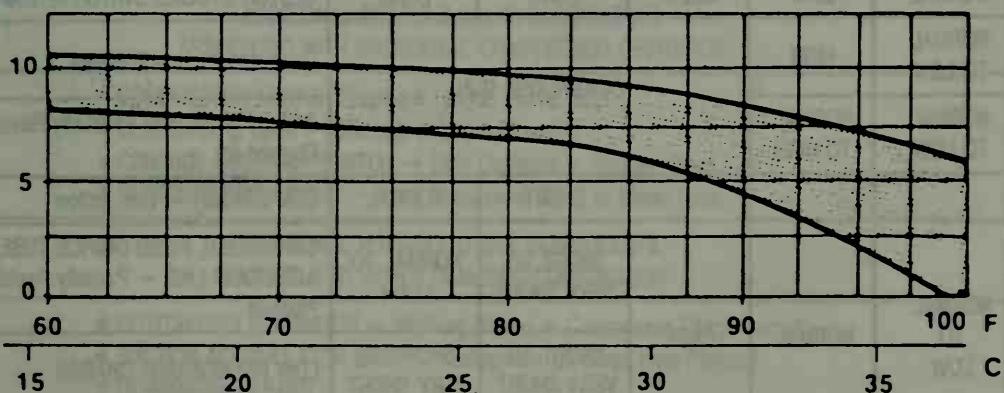
Cycling Clutch Timing Rates — Ranger, F-150-350, Bronco, Bronco II

Normal Fixed Orifice Tube Cycling Clutch Refrigerant System Pressures

Normal Clutch On Time — Seconds



Normal Clutch Off Time — Seconds



Ambient Temperatures

Climate Control Systems — A/C, Heater

SERVICE SPECIFICATIONS — CONT'D

Refrigerant System Pressure and Clutch Cycle Timing Evaluation Chart for Fixed Orifice Tube Cycling Clutch Systems — Ranger, F-150-350, Bronco, Bronco II

NOTE: Normal system conditional requirements must be maintained to properly evaluate refrigerant system pressures. Refer to charts applicable to system under test.

| HIGH (DISCHARGE) PRESSURE | LOW (SUCTION) PRESSURE | CLUTCH CYCLE TIME | | | COMPONENT — CAUSES |
|---------------------------------|------------------------------|---------------------|------------------------|------------------------|--|
| | | RATE | ON | OFF | |
| HIGH | HIGH | CONTINUOUS RUN | | | CONDENSER — Inadequate Airflow |
| HIGH | NORMAL TO HIGH | | | | ENGINE OVERHEATING |
| NORMAL TO HIGH | NORMAL | | | | AIR IN REFRIGERANT REFRIGERANT OVERCHARGE (a) HUMIDITY OR AMBIENT TEMP. VERY HIGH (b) |
| NORMAL | HIGH | | | | FIXED ORIFICE TUBE — Missing O-Rings Leaking/Missing |
| NORMAL | HIGH | SLOW | LONG | LONG | CLUTCH CYCLING SWITCH — High Cut-In |
| NORMAL | NORMAL | SLOW OR NO CYCLE | LONG OR CONTINUOUS | NORMAL OR NO CYCLE | MOISTURE IN REFRIGERANT SYSTEM. EXCESSIVE REFRIGERANT OIL |
| | | FAST | SHORT | SHORT | CLUTCH CYCLING SWITCH — Low Cut-In or High Cut-Out |
| NORMAL | LOW | SLOW | LONG | LONG | CLUTCH CYCLING SWITCH — Low Cut-Out |
| NORMAL TO LOW | HIGH | CONTINUOUS RUN | | | Compressor - Low Pressure |
| NORMAL TO LOW | NORMAL TO HIGH | | | | A/C SUCTION LINE - Partially Restricted or Plugged (c) |
| NORMAL TO LOW | NORMAL | FAST | SHORT | NORMAL | EVAPORATOR — Low Airflow |
| | | | SHORT TO VERY SHORT | NORMAL TO LONG | CONDENSER, FIXED ORIFICE TUBE, OR A/C LIQUID LINE — Partially Restricted or Plugged |
| | | | SHORT TO VERY SHORT | SHORT TO VERY SHORT | LOW REFRIGERANT CHARGE |
| | | | SHORT TO VERY SHORT | LONG | EVAPORATOR CORE — Partially Restricted or Plugged |

(a) Compressor may make noise on initial run. This is slugging condition caused by excessive liquid refrigerant.
(b) Compressor clutch may not cycle in ambient temperatures above 80°F depending on humidity conditions.
(c) Low pressure reading will be normal to high if pressure is taken at accumulator and if restriction is downstream of service access valve.

Climate Control Systems — A/C, Heater

SERVICE SPECIFICATIONS — CONT'D

Refrigerant System Pressure and Clutch Cycle Timing Evaluation Chart for Fixed Orifice Tube Cycling Clutch Systems — Ranger, F-150-350, Bronco, Bronco II — Cont'd

NOTE: Normal system conditional requirements must be maintained to properly evaluate refrigerant system pressures. Refer to charts applicable to system under test.

| HIGH (DISCHARGE) PRESSURE | LOW (SUCTION) PRESSURE | CLUTCH CYCLE TIME | | | COMPONENT — CAUSES |
|--|------------------------------|-------------------|---------------|---------------|---|
| | | RATE | ON | OFF | |
| NORMAL TO LOW | LOW | CONTINUOUS RUN | | | A/C SUCTION LINE — Partially Restricted or Plugged (d) CLUTCH CYCLING SWITCH — Sticking Closed |
| LOW | NORMAL | VERY FAST | VERY SHORT | VERY SHORT | CLUTCH CYCLING SWITCH — Cycling Range Too Close |
| ERRATIC OPERATION OR COMPRESSOR NOT RUNNING | | — | — | — | CLUTCH CYCLING SWITCH — Dirty Contacts or Sticking Open. POOR CONNECTION AT A/C CLUTCH CONNECTOR OR CLUTCH CYCLING SWITCH CONNECTOR. A/C ELECTRICAL CIRCUIT ERRATIC — See A/C Electrical Circuit Wiring Diagram A/C PUSH BUTTON SWITCH — Not Depressed, Dirty Contacts or Open Circuit |
| ADDITIONAL POSSIBLE CAUSE COMPONENTS ASSOCIATED WITH INADEQUATE COMPRESSOR OPERATION | | | | | |
| <ul style="list-style-type: none"> ● COMPRESSOR CLUTCH Slipping ● LOOSE DRIVE BELT ● CLUTCH COIL Open — Shorted, or Loose Mounting ● CONTROL ASSEMBLY SWITCH — Dirty Contacts or Sticking Open ● CLUTCH WIRING CIRCUIT — High Resistance, Open or Blown Fuse | | | | | |
| ADDITIONAL POSSIBLE CAUSE COMPONENTS ASSOCIATED WITH A DAMAGED COMPRESSOR | | | | | |
| <ul style="list-style-type: none"> ● CLUTCH CYCLING SWITCH — Sticking Closed or Compressor Clutch Seized ● SUCTION ACCUMULATOR DRIER — Refrigerant Oil Bleed Hole Plugged ● REFRIGERANT LEAKS | | | | | |
| <p>(d) Low pressure reading will be low if pressure is taken near the compressor and restriction is upstream of service access valve.</p> | | | | | |

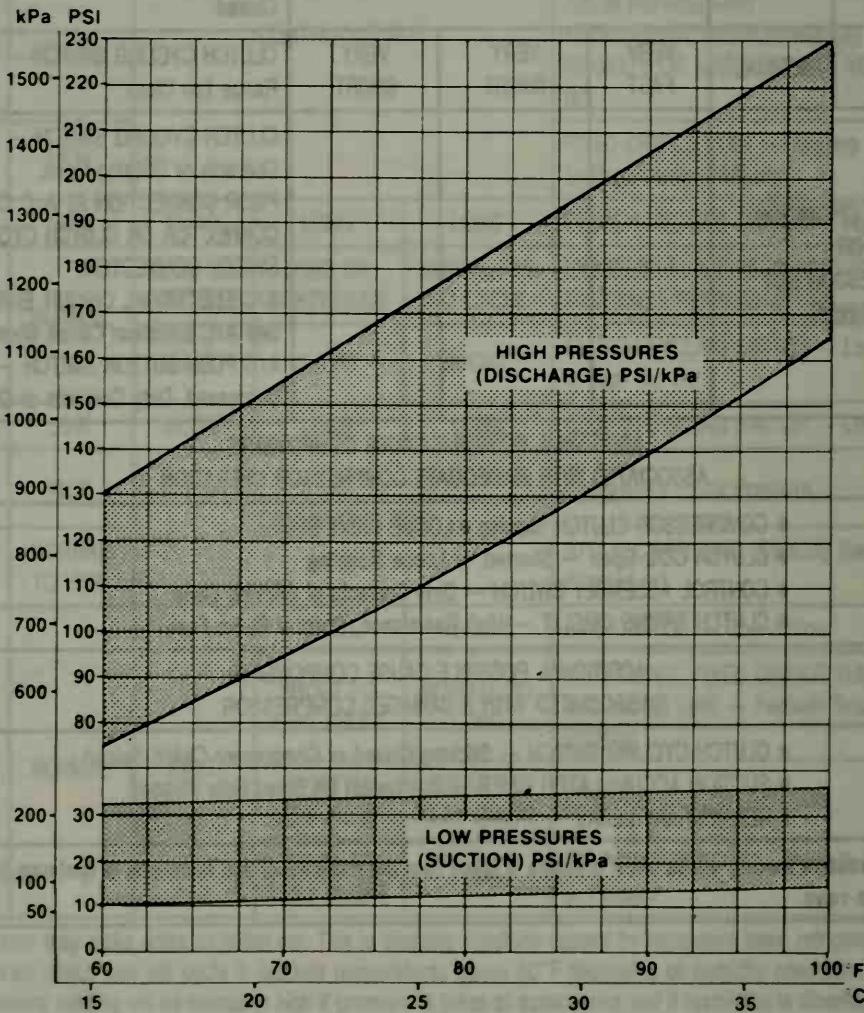
SERVICE SPECIFICATIONS — CONT'D

Cycling Clutch Pressure/Temperature Operating Specifications — E-150-350

These Conditional Requirements for the
Cycling Clutch System Tests Must Be Satisfied to
Obtain Accurate Pressure Readings

- **Stabilized Pressures**
- **Stabilized in Car Temperatures @ 70° to 80°F (21° to 27°C)**
- **Maximum A/C (Recirculating Air)**
- **Maximum Blower Speed**
- **1500 Engine RPM**
- **Compressor Clutch Engaged**

Normal Cycling Clutch Refrigerant System Pressures

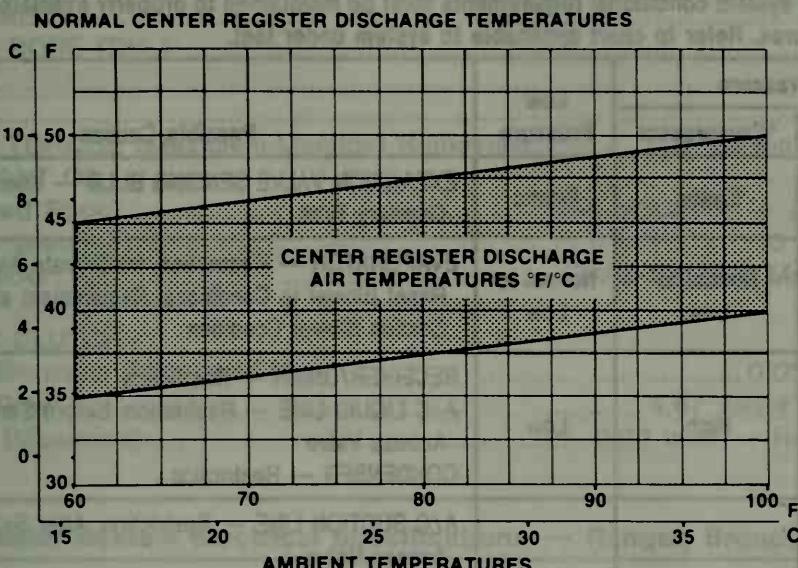


Ambient Temperatures

Climate Control Systems — A/C, Heater

SERVICE SPECIFICATIONS

Clutch Cycling Pressure/Temperature Operating Specifications — E-150-350 — Cont'd



Refrigerant System Pressure Evaluation Chart for De-Icing Switch Cycling Clutch Systems — E-150-350

NOTE: Normal system conditional requirements must be maintained to properly evaluate refrigerant system pressures. Refer to chart applicable to system under test.

| High Pressure | | Low Pressure | Possible Causes |
|-------------------|-------------------|-------------------|---|
| *Liquid Line | *Compressor | | |
| High | High | High | ENGINE OVERHEATING EXPANSION VALVE SENSING BULB — Poor Contact. Inadequate Insulation. HEATER WATER VALVE — Insufficient Closure. EVAPORATOR — Too Much Heat, Observe Conditional Requirements. EXPANSION VALVE — Sticking Open. |
| High | High | Normal to High | AIR IN REFRIGERANT SYSTEM |
| High | High | Normal | REFRIGERANT — Overcharge |
| High | High | Low | COMPRESSOR-TO-CONDENSER A/C LINE — Restriction; After Service Access Valve. |
| Normal to High | Normal to High | High | CONDENSER — Inadequate Air Flow (Bent Fins, Debris, Loose Radiator Fan Belt, Slipping Fan Clutch) |
| Normal to High | Normal to High | Normal to High | HUMIDITY WELL ABOVE NORMAL EXCESSIVE REFRIGERANT OIL |
| Normal to Erratic | Normal to Erratic | Normal to Erratic | MOISTURE IN REFRIGERANT SYSTEM — Affects Expansion Valve Function. |

Climate Control Systems — A/C, Heater

SERVICE SPECIFICATIONS — CONT'D

Refrigerant System Pressure Evaluation Chart for De-Icing Switch Cycling Clutch Systems — E-150-350 — Cont'd

NOTE: Normal system conditional requirements must be maintained to properly evaluate refrigerant system pressures. Refer to chart applicable to system under test.

| High Pressure | | Low Pressure | Possible Causes |
|---------------|---------------|---------------|--|
| *Liquid Line | *Compressor | | |
| Erratic | Erratic | Erratic | EXPANSION VALVE SENSING BULB — Kinked Capillary Tube |
| Normal to Low | Normal to Low | Normal to Low | EVAPORATOR — Restriction, Inadequate Air Flow — Reset Blower to Conditional Requirement and/or Confirm Blower Condition |
| Low | High | Low | RECEIVER/DRIER — Restriction A/C LIQUID LINE — Restriction; Before Service Access Valve CONDENSER — Restriction |
| Low | Low | High | A/C SUCTION LINE — Restriction; After Service Access Valve SUCTION ACCUMULATOR — Restriction; After Service Access Valve COMPRESSOR — Damaged Valves — (Inadequate compression) |
| Low | Low | Low | A/C SUCTION LINE — Restriction; Before Service Access Valve SUCTION ACCUMULATOR — Restriction; Before Service Access Valve EVAPORATOR — Iced-up/CONDENSER — Plugged RECEIVER/DRIER — Plugged A/C LIQUID LINE — Restriction; After Service Access Valve EXPANSION VALVE SENSING BULB — Perforated Bulb/EXPANSION VALVE — Sticking Closed REFRIGERANT LEAK AND/OR UNDERCHARGE COMPRESSOR-TO-CONDENSER A/C LINE — Restriction; Before Service Access Valve DE-ICING SWITCH — Sticking closed/ COMPRESSOR CLUTCH — Seized |

Additional Possible Cause Components Associated With Inadequate Compressor Operation

COMPRESSOR CLUTCH — Slipping/COMPRESSOR DRIVE BELT — Loose
CLUTCH COIL — Shorted coils; Slipping/CLUTCH COIL — Open Circuit/Blown Clutch Circuit Fuse
DE-ICING SWITCH — Sticking Open/Improper Clutch Circuit Contact in Control Assembly Switch

Additional Possible Cause Components Associated With a Non-Functional Compressor

DE-ICING SWITCH — Sticking Closed/COMPRESSOR CLUTCH — Seized/REFRIGERANT LEAK

Climate Control Systems — A/C, Heater

SERVICE SPECIFICATIONS — CONT'D

FS-6 Compressor — All Vehicles

| | |
|---|--|
| TYPE | — Swash Plate — Three double acting pistons — Axial Type |
| DISPLACEMENT..... | 10.4 CID |
| CYLINDER BORE (DIA.) | 1.4 inch |
| STROKE..... | 1.2 inch |
| ROTATION..... | Clockwise |
| ROTATION TORQUE (Maximum-Manifold Removed)..... | 10 N·m — 7 ft.-lbs. |
| REFRIGERANT OIL | |
| Type (Ford Spec) | ESA-M2C31-A — 500 Viscosity |
| Capacity (New) | 10 Fluid Ounces |
| Part Number..... | C9AZ-19577-B Motorcraft YN2 |

MAGNETIC CLUTCH

| | |
|-------------------------------------|-----------------------------|
| Air Gap Between Pulley and Hub..... | 0.021-0.036 inch |
| Current Draw..... | 4.67 Amps @ 12.8 volts |
| Run-Out (Maximum)..... | 0.02 inch — Radial or Axial |

A/C — Heater System Electrical Specifications — Ranger, Bronco II

| | | | |
|---|--|-----------|-------|
| Protective Device | 30 Amp. Fuse in Blower Circuit Brown — Orange | | |
| | 15 Amp. Fuse in Clutch Circuit White — Purple | | |
| | Thermal Limiter in Blower Resistor Circuit (Integral with Resistor) | | |
| Control Assembly Illumination | One — 1 C.P. — 161 Bulb | | |
| A/C Push Button | One #8605 Bulb Part No. E3TZ-13466-B | | |
| Blower Motor | Blower Speed* | Amps | Volts |
| Current Draw and Voltage Drop (Amps and Voltage) | Off | — | — |
| | Low | 3.0-5.0 | 5.1 |
| | Med. Low | 5.0-7.0 | 7.6 |
| | Med. High | 8.5-10.0 | 10.4 |
| | High | 11.5-13.0 | 13.4 |

*With the Following Control Lever Positions:

- Function Lever in Panel
- Air Door Lever in Max. A/C

Climate Control Systems — A/C, Heater

SERVICE SPECIFICATIONS — CONT'D

A/C-Heater System Electrical Specifications — F-150-350, Bronco

| | | | |
|--|---|---|-------|
| Protective Device | 30 Amp. Fuse (Light Green) | Thermal Limiter in Blower Resistor Circuit (Integral with Resistor) | |
| Blower Motor | Blower Speed* | Amps | Volts |
| Current Draw (Amps and Voltage) | Low | 6.0 | 5.0 |
| *With the Following Control Lever Positions: | Med. Low | 8.0 | 7.0 |
| • Function Lever in Max. A/C | Med. High | 15.0 | 10.0 |
| • Temp Lever at Cool | High | 25.0 | 12.8 |
| Magnetic Clutch | Current Draw — Approximately 4.67 Amps @ 12.8 Volts | | |
| Illumination Control Assembly | One ICP-161 Bulb | | |

A/C-Heater System Electrical Specifications — E-150-350

| | | | |
|--|---|---|-------|
| Protective Device | 35 Amp. Fuse in Fuse Panel | Thermal Limiter in Blower Resistor Circuit (Integral with Resistor) | |
| Blower Motor | Blower Speed* | Amps | Volts |
| Current Draw (Amps and Voltage) | Low | 6.0 | 5 |
| *With the Following Control Lever Positions: | Med. Low | 8.0 | 7 |
| • Function Lever in Max. A/C | Med. High | 15.0 | 10 |
| • Temp Lever at Cool | High | 25.0 | 12.8 |
| Magnetic Clutch | Current Draw — Approximately 4.67 Amps @ 12.8 Volts | | |
| Illumination Control Assembly | One ICP-161 Bulb | | |

Climate Control Systems — A/C, Heater

SERVICE SPECIFICATIONS — CONT'D

System Electrical Specifications — E-150-350 Auxiliary System

| | | | |
|--|---|------|-------|
| System Protection | 35 Amp. Fuse in Fuse Panel | | |
| Main System | | | |
| Auxiliary System | Fuse Link (Orange) Connected to Starter Relay or Dual Battery Relay | | |
| Blower Motor | Blower Speed* | Amps | Volts |
| Current Draw | Off | | |
| Auxiliary System | Low | 6.0 | 5 |
| *With the Following Control Lever Positions: | Med. Low | 8.0 | 7 |
| • Function Lever in Max. A/C | Med. High | 15 | 10 |
| • Temp Lever at Cool | High | 25 | 12.8 |
| Magnetic Clutch | | | |
| Current Draw (A/C Only) | Common with Main A/C System | | |
| Illumination | | | |
| Control Assembly | One ICP-161 Bulb | | |

SERVICE SPECIFICATIONS — CONT'D**Refrigerant Flushing**

| Refrigerant | Vaporizes @ °F | Approximate Closed Container Pressure @ | | | | | Adaptability |
|-------------|----------------|---|----------|----------|----------|---------|-----------------|
| | | 60° F | 70° F | 80° F | 90° F | 100° F | |
| R-12 | -21.6° F | 57 PSI | 70 PSI | 84 PSI | 100 PSI | 117 PSI | Self Propelling |
| F-114 | 38.4° F | 8 PSI | 13 PSI | 19 PSI | 25 PSI | 32 PSI | * |
| F-11 | 74.7° F | 8 in Hg | 3 in Hg | 1 PSI | 5 PSI | 9 PSI | * |
| F-113 | 117.6° F | 22 in Hg | 19 in Hg | 16 in Hg | 13 in Hg | 8 in Hg | Pump Required |

*F-11 is also available in pressurized containers. This makes it suitable for usage when special flushing equipment is not available. However, it is more toxic than R-12 and F-114.

Drive Belt Tension — Lbs. — All Vehicles

| Belt Type | New | Used Minimum | Used Reset Limits |
|-----------|---------|--------------|-------------------|
| 5 Rib | 110-140 | 75 | 110-130 |
| 6 Rib | 140-170 | 90 | 140-160 |

Torque Specifications**FS-6 Compressor — All Vehicles**

| Description | TORQUE | |
|---|-----------|-----------|
| | N·m | ft-lb |
| Hose Manifold to Compressor — F-150-350, Bronco | 24-34 | 18-25 |
| Hose Manifold to Compressor — Ranger | 18-23 | 13-17 |
| Clutch Hub Nut | 13-20 | 10-14 |
| Compressor Cylinder Bolts | 24.5-26.5 | 18-19 |
| Cylinder Bolts (to Correct Freon Leak) | 34 (Max.) | 25 (Max.) |
| Suction Hose to Manifold | 28-37 | 21-27 |
| Discharge Hose to Manifold | 20-27 | 15-20 |

Climate Control Systems — A/C — Heater

TORQUE SPECIFICATIONS — CONT'D

A/C — Heater System — Ranger

| Description | TORQUE | |
|--|----------------------|-------|
| | N·m | ft-lb |
| Pressure Switch to Accumulator Nipple Steel Base | 7-14 | 5-10 |
| Pressure Switch (Plastic Base) | Finger Tight Only | |
| Liquid Line to Evaporator Core | 20-27 | 15-20 |
| Accumulator to Evaporator Core | 35-42 | 26-31 |
| Liquid Line to Condenser | Spring Lock Coupling | |
| Discharge Line to Condenser | Spring Lock Coupling | |
| Suction Hose to Compressor Manifold | 35-42 | 26-31 |
| Discharge Hose to Compressor Manifold | 33-39 | 24-29 |
| Hose Manifold to Compressor | 18-23 | 13-17 |
| Clutch Hub Nut | 13-20 | 10-14 |
| Compressor Head Bolts | 24.5-26.5 | 18-19 |
| Compressor Attaching Bolts | 34-47 | 25-35 |
| Compressor Bracket to Engine | 42-58 | 31-43 |

A/C — Heater System — F-150-350, Bronco

| Description | TORQUE | |
|--|--------|-------|
| | N·m | ft-lb |
| Condenser Mounting Bracket Screws | 14-19 | 10-14 |
| Liquid Line to Evaporator Core | 21-27 | 15-20 |
| Suction Line to Accumulator | 40-47 | 30-35 |
| Accumulator to Evaporator Core Fitting | 35-42 | 26-31 |

Climate Control Systems — A/C — Heater

TORQUE SPECIFICATIONS — CONT'D

A/C — Heater System — F-150-350, Bronco — Cont'd

| Description | TORQUE | |
|---|--------|--------------|
| | N·m | ft-lb |
| Pressure Switch | | Hand Tighten |
| Compressor Discharge Line to Condenser | 21-27 | 15-20 |
| Liquid Line to Condenser (Self Sealing) | 9 | 7 |
| Liquid Line to Condenser (Not Self Sealing) | 21-27 | 15-20 |
| Suction Line to Compressor | 28-37 | 21-27 |
| Discharge Line to Compressor | 28-37 | 21-27 |

A/C — Heater (Main) System — E-150-350

| Description | TORQUE | | |
|--|--------|----------------|------------------------|
| | ft-lb | in-lb | N·m |
| Suction Hose to Evaporator Core | 30-35 | | 41-47 |
| Discharge Hose to Condenser | 24-29 | | 33-39 |
| Liquid Line to Condenser or Sight Glass | 8-13 | | 11-17 |
| Liquid Line to Expansion Valve | 10-15 | | 14-20 |
| Heater Hose Clamps | | 12-18 | 1.35-2.03 |
| Condenser to Mounting Bracket | 12-18 | | 17-24 |
| Condenser Mounting Bracket to Radiator Support | 12-18 | | 17-24 |
| Compressor to Bracket | 20-32 | | 28-43 |
| Compressor Bracket to Support to Engine (4.9L) | 45-65 | | 62-88 |
| Compressor Adjusting Bracket to Support Bracket (4.9L) | 30-45 | | 41-61 |
| Compressor Bracket to Engine (8-Cylinder) | 45-65 | | 62-88 |
| Idler Pulley to Bracket (8-Cylinder) | 30-45 | | 41-61 |
| Compressor Brace to Engine | 30-45 | | 41-61 |
| Compressor Brace to Compressor | 20-32 | | 28-43 |
| Evaporator Case to Dash Panel | | 30-40 | 3.38-4.51 |
| Plenum to Evaporator Case | | 12-17 | 1.35-1.92 |
| Temperature Cable To Bracket at Evaporator Case To Control Assembly | | 17-22 10-15 | 1.92-2.48 1.12-1.69 |
| Defroster Nozzle to Instrument Panel Opening | | 9-15 | 1.02-1.69 |
| Control Assembly to Support Bracket | | 10-15 | 1.12-1.69 |
| Control Support Bracket to Instrument Panel | | 17-22 | 1.92-2.48 |

Climate Control Systems — A/C — Heater

TORQUE SPECIFICATIONS — CONT'D

A/C — Heater (Auxiliary) System — E-150-350

| Description | TORQUE | |
|------------------------------------|--------|-------|
| | N·m | ft-lb |
| Expansion Valve to Evaporator Core | 21-27 | 15-20 |
| Liquid Line to Expansion Valve | 14-20 | 10-15 |
| Liquid Line at Sight Glass | 11-17 | 8-13 |
| Suction Line to Evaporator Core | 41-47 | 30-35 |
| Suction Line Underbody Connection | 41-47 | 30-35 |
| Liquid Line Underbody Connection | 14-20 | 10-15 |

Body — Seats

FRONT SEATS

Seat Track — Manual — Torque N·m (Ft-Lbs) — Ranger

| Seat Track-To-Cushion | | Seat Track-To-Floor | |
|-----------------------|--------------|---------------------|--------------|
| Bench | Bucket | Bench | Bucket |
| 12-24 (9-18) | 12-24 (9-18) | 12-24 (9-18) | 12-24 (9-18) |

Seat Track — Manual — Torque N·m (Ft-Lbs) — E-, F-150-350, Bronco

| Seat Track-To-Cushion | | | Seat Track-To-Floor Pan or Support | | | |
|-----------------------|---------------|---------------|------------------------------------|---------------|----------------------------|-------------|
| Vehicle | Bench | Bucket | Captains | Bench | Bucket | Captains |
| Econoline | — | 10-23 (7-17) | 10-23 (7-15) | — | 62-81 (45-60) | 9-20 (6-15) |
| F-Series & Bronco | 17-27 (12-20) | 17-27 (12-20) | 10-23 (7-15) | 25-44 (18-32) | 25-44 N·m (18-32 ft-lb) | 9-20 (6-15) |

Body — Seats

CONVENTIONAL REAR SEATS — E-150-350

Torque Specifications

| | |
|----------------|-------------------------|
| Mounting Bolts | 62-81 N·m (45-60 Ft-Lb) |
| Seat Bolts | 34-61 N·m (25-45 Ft-Lb) |

Folding Rear Seats — F-150-350 (Super Cab), Bronco, E-150-350

Torque Specifications

| Description | TORQUE | |
|---|--------|--------------|
| | N·m | ft-lb |
| Rear Seat Mounting Bolts — F-Series SuperCab | 25-44 | 18-32 |
| Rear Seat Cushion Latch Bolts — Bronco | 41-54 | 30-40 |
| Rear Seat Back Latch Assembly Screws — Bronco | 17-27 | 12-20 |
| Rear Seat Mounting and Latch Striker Bolts — Bronco | 62-81 | 45-60 |
| Rear Seat/Bed Back Cushion to Frame Attaching Screws — E-Series | 11-21 | 8-16 |
| Rear Seat/Bed Back Cushion Wing Nut — E-Series | 2-3 | 20-30(in-lb) |
| Rear Seat/Bed Side Cushion Retaining Nuts — E-Series | 14-20 | 10-15 |
| Rear Seat/Bed Bottom Cushion Retaining Nuts — E-Series | 14-20 | 10-15 |
| Rear Seat/Bed Mounting Bolts — E-Series | 62-81 | 45-60 |

Seat Back Latch — Ranger, F-150-350, Bronco

Torque Specifications

| Description | TORQUE | |
|---|--------|-------|
| | N·m | ft-lb |
| Latch Assembly Retaining Nuts (Ranger) | 19-27 | 15-20 |
| Striker Assembly to Seat (Bronco Bucket — Driver's) | 13-24 | 9-18 |
| Bracket to Seat (Bronco Bucket — Passenger) | 13-24 | 9-18 |
| Retainer to Bracket (Bronco Bucket — Passenger) | 13-24 | 9-18 |
| Retainer Nut (Bronco Bucket — Passenger) | 8-12 | 6-9 |
| Latch Attaching Bolts (F-Series: Regular Cab) | 25-37 | 18-28 |
| Latch Attaching Bolts (F-Series: Super Cab, Bronco) | 17-24 | 12-18 |

Body — Seats

RECLINING SEAT BACK — RANGER

Torque Specifications

Recliner Assembly to Seat Cushion Retaining Screws 30-43 N·m (22-32 ft-lb)
Inboard Seat Back to Seat Cushion Pivot Screws 19-27 N·m (15-20 ft-lb)

Seat and Shoulder Belts

Parts Replacement Chart — Seat and Shoulder Belt with Damaged Weld Nut Anchor Plate Threads — All Vehicles

| Original Parts — Seat Belt | | | Replacement Parts — Seat Belt | | |
|----------------------------|-----------------|---|-------------------------------|-----------------|---|
| Part No. | (1) Code Letter | Part Name | Part No. | (1) Code Letter | Part Name |
| 386273-S100 | IA | Bolt — 7/16-20 x 1.38 Pan Head Tapping | 383531-S36 | X | Bolt — 1/2-13 x 1.38 Pan Locking |
| 386274-S100 | IB | Bolt — 7/16-20 x 1.75 Pan Head Tapping (.50 Shoulder) | 383753-S36 | Y | Bolt — 1/2-13 x 1.75 Pan Locking (.50 Shoulder) |
| 382629-S100 | — | Washer — .463/.443 I.D. Plate (1.80 Dia. .190 Thick) | 382552-S100 | — | Washer — 1/2 Flat (1.30 Dia. .190 Thick) |
| 382583-S100 | — | Washer — 1/2 Serrated (.18 Thick) | 382533-S100 | — | Washer — 1/2 Flat (.25 Thick) |
| 386272-S100 | IF | Bolt — 7/16-20 x .88 Pan Head Tapping | 383437-S36 | W | Bolt — 1/2 x 13 Pan Locking |
| 386276-S100 | IL | Bolt — 7/16-20 x 1.75 Pan Shoulder Tapping (.75 Shoulder) | 383754-S36 | Z | Bolt — 1/2-13 x 2.25 Pan Locking (.88 Shoulder) |
| 386277-S100 | IK | Bolt — 7/16-20 x 1.38 Pan Shoulder Tapping (.50 Shoulder) | 385709-S | T | Bolt — 1/2-13 x 1.38 Pan Head Shoulder Locking |
| 382580-S100 | — | Washer — 7/16 | | | |
| 386392-S100 | D | Bolt — 3/8-16 x 1.50 Pan Head Tapping | | | |
| | IG | 7/16-20 x 2.15 | | | |
| 384966-S100 | V | Bolt — 7/16-20 x 1.75 Pan Head Tapping | | | |

(1) Identification letter on top of bolt head or face of spacer.

Note: Bolt Torque Must be Maintained at 30-43 N·m (22-32 ft-lb)

Torque Specifications — All Vehicles

All Bolts 30-43 N·m (22-32 ft-lb)

DOOR WINDOWS — MECHANICAL**Torque Specifications**

| | |
|---|-------------------------|
| Regulator Handle Retaining Screw (Ranger)..... | 4-5.5 N·m (36-48 in-lb) |
| Window Guide Retaining Nut (Ranger) | 7-11 N·m (62-97 in-lb) |
| Rear Run Retainer Attaching Screws (E-150-350)..... | 10-14 N·m (7-11 ft-lb) |

Door Windows — Power**Electrical Specifications — F-150-350, Bronco****Torque Specifications — F-150-350, Bronco**

| | |
|-----------------------------|------------------------|
| Motor Retaining Screws..... | 6-10 N·m (50-85 in-lb) |
|-----------------------------|------------------------|

Pivot Type Rear Door and Side Window — E-150-350**Torque Specifications**

| | |
|-------------------------------------|---------------------------|
| Hinge Attaching Screws..... | 0.9-2.25 N·m (8-20 in-lb) |
| Latch Anchor Attaching Screws | 3-8 N·m (2-6 ft-lb) |

Tailgate Window — Bronco II**Torque Specifications**

| | |
|--------------------------|-----------------------|
| All Nuts and Screws..... | 9-14 N·m (6-11 ft-lb) |
|--------------------------|-----------------------|

| | | |
|---|-----|-------------|
| Front Door Left Front Door Panel Control Assembly Attaching Screws | A-1 | 108 |
| Front Door Left Front Door Panel Latch Retainer | A-2 | 108 |
| Front Door Left Front Door Panel Control Assembly and Latch Retainer Screws | A-3 | 40 |
| Front Door Left Front Door Panel Hinge Retainer | A-4 | 10-12 ft-lb |
| Front Door Right Front Door Panel Retainer | A-5 | 40 |
| Front Door Right Front Door Panel Control Assembly | A-6 | 8-11 |
| Front and Left Rear Door Panel Latch and Retainer Assembly | A-7 | 10-12 ft-lb |

Body — Mirrors

MIRRORS — INSIDE AND OUTSIDE

Torque Specifications — All Vehicles

| Description | N·m | In-Lb |
|--|-----------|-----------------------|
| Inside Rearview Mirror Set Screw — All | 0.6-1.7 | 5-15 |
| STD — Single Arm RPO Swing Away E-150-350 | | 10-25 3-6 (ft-lbs) |
| Ranger, F-150-350, Bronco | 4-8 | 35-70 |
| Conventional Outside Mirror Reinforcement Attaching Screw — Ranger | 1.3-2.2 | |
| Western Outside Mirror Reinforcement Attaching Screw — Ranger | 1.3-2.2 | 12-19 |
| Western Outside Mirror Reinforcement Retaining Nut — Ranger | 4-8 | 35-70 |
| Western Outside Mirror Attaching Screws — All | 4-8 | 35-70 |
| Electric Mirror Attaching Screws — E-, F-150-350, Bronco | 4-8 | 35-70 |
| Electric Mirror Wiring Assembly Attaching Screw — E-, F-150-350, Bronco | 1.13-1.46 | 10-13 |
| Electric Mirror Switch Bezel Nuts — E-, F-150-350, Bronco | 2.03-2.75 | 18-20 |

Body — Doors, Hood, and Tailgate

DOOR HINGES, LATCHES AND MECHANICAL LOCKS

Torque Specifications

Ranger, F-150-350, Bronco

| Description | N·m | ft-lb |
|---|-------|---------------|
| Door Hinge Attaching Screws — All | 19-32 | 14-24 |
| Door Latch Attaching Screws — Ranger | 4-8 | 35-70 (in-lb) |
| Door Latch Remote Control Assembly Attaching Screws — F-150-350, Bronco | 9-14 | 6-10 |
| Door Latch Striker — F-150-350, Bronco | 40-60 | 30-45 |

E-150-350

| Description | N·m | ft-lb |
|--|-----------|---------------|
| Door Hinge Attaching Screws | 19-32 | 14-24 |
| Front Door Remote Control Assembly Attaching Screws | 4-8 | 3-6 |
| Front Door Inside Handle Bushings | 1.12-2.25 | 10-20 (in-lb) |
| Front and Front Side Cargo Doors Latch Striker | 41-67 | 30-50 |
| Front and Front Side Cargo Doors Outside Handle Retaining Nuts | 4-9 | 3-7 |
| Front and Front Side Cargo Doors Latch Attaching Screws | 4-8 | 3-6 |
| Rear Side Cargo Door Upper and Lower Latch Attaching Screws | 9-14 | 6-11 |
| Rear Side/Left Rear Door Remote Control Assembly Attaching Screws | 4-8 | 3-6 |
| Rear Side/Left Rear Doors Latch Strikers | 41-67 | 30-50 |
| Right Rear Door Remote Control Assembly and Bracket Attaching Screws | 4-8 | 3-6 |
| Right Rear Door Inside Handle Retaining Nuts | 2-5 | 18-43 (in-lb) |
| Right Rear Door Outside Handle Retaining Nuts | 4-9 | 3-7 |
| Right Rear Door Upper Latch and Striker Assemblies Screws | 8-14 | 6-11 |
| Right and Left Rear Doors Lower Latch and Striker Assemblies Screws | 8-14 | 6-11 |

Body — Doors, Hood, and Tailgate

Latch Striker Adjustment — Ranger

Body — Doors, Hood, and Tailgate

SLIDING DOOR — E-150-350

STANDARD

Torque Specifications

| Description | N·m | ft-lb |
|--|----------|---------------|
| Latch Attaching Screws | 4-8 | 35-70 (in-lb) |
| Hinge Attaching Screws | 9-14 | 6-11 |
| Roller Retaining Nut | 10-14 | 7-11 |
| Roller Bracket Attaching Screws | 10-14 | 7-11 |
| Guide Assembly Attaching Screws | 17-27 | 12-20 |
| Latch Striker | 41-67 | 30-50 |
| Center Hinge Check Attaching Screws | 7-14 | 5-11 |
| Latch Rod Retaining Nut | 2-5 | 18-43 (in-lb) |
| Outside Handle Sleeve Attaching Screws | 0.9-2.25 | 8-20 (in-lb) |

Hood

Torque Specifications — All Vehicles

| Description | N·m | ft-lb |
|--|-------|-------|
| Hinge to Hood Attaching Bolts — Ranger | 7-11 | 5-8 |
| Hinge to Cowl Attaching Bolts — Ranger | 9-14 | 7-10 |
| Auxiliary Latch Attaching Screws — Ranger | 9-14 | 7-10 |
| Auxiliary Latch Attaching Screws — F-150-350, Bronco | 22-34 | 16-25 |
| Hinge Retaining Nuts (1) — E-150-350 | 7-9 | 5-7 |
| Hook Attaching Screws — E-150-350 | 17-27 | 12-20 |

(1) Fiberglass Hood.

Body — Doors, Hood, and Tailgate

TAILGATE

Torque Specifications — Ranger

| Description | N·m | ft-lb |
|---|-------|-------|
| Latch Bracket to Tailgate Retaining Nut | 8-15 | 6-11 |
| Latch Bracket to Body Attaching Screws | 22-34 | 17-25 |
| Latch Attaching Screws | 22-34 | 17-25 |
| Latch Release Handle Attaching Screws | 9-14 | 7-11 |
| Hinge Attaching Screws | 27-40 | 20-29 |

Torque Specifications — F-150-350, Bronco

| Description | N·m | ft-lb |
|--|-------|-------|
| Handle Assembly Attaching Screws — F-150-350 | 17-27 | 12-20 |
| Brackets Attaching Screws — Bronco | 8-14 | 6-11 |
| Latch Striker Attaching Screws — Bronco | 17-27 | 12-20 |
| Cable Attaching Bolts — Bronco | 28-40 | 20-30 |
| Latch Control Assembly Attaching Screws — Bronco | 8-14 | 6-11 |
| Latch Attaching Screws — Bronco | 3-8 | 2-6 |

Body — Interior Trim

TRIM PANELS

Torque Specifications

| Description | N·m | In-Lb |
|--|----------|-------------|
| Door Trim Panel Support Attaching Screws — F-150-350, Bronco | 1-2 | 9-17 |
| Door and Quarter Arm Rest Attaching Screws — E-150-350 | 2.5-3 | 22-27 |
| Utility Table Stowage Strap Attaching Screws — E-150-350 | 4-9 | 3-7 (ft-lb) |
| Utility Table Stowage Support Attaching Screws — E-150-350 | 2.5-3 | 22-27 |
| Instrument Panel Pad Retaining Nuts — E-150-350 | 0.9-2.25 | 8-20 |
| Instrument Panel Pad Attaching Screws — F-150-350, Bronco | 1-2 | 8-18 |



| Model Year (1990) | Overall Length (in.) | Front End Width (in.) | Rear End Width (in.) | Axle Centerline (in.) | Front Axle Angle (deg.) | Front Axle Angle (deg.) | Rear Axle Angle (deg.) | Rear Axle Angle (deg.) | Front Tire Width (in.) | Rear Tire Width (in.) |
|-------------------------|----------------------------|--------------------------------|-------------------------------|-----------------------------|----------------------------------|----------------------------------|---------------------------------|---------------------------------|---------------------------------|--------------------------------|
| 90 | 167.5 | 70.5 | 70.5 | 102.5 | 2.4° | -2.4° | 1.5° | -1.5° | 10.0 | 10.0 |
| 91-92 | 172.5 | 70.5 | 70.5 | 102.5 | 2.4° | -2.4° | 1.5° | -1.5° | 10.0 | 10.0 |
| 93-94 | 177.5 | 70.5 | 70.5 | 102.5 | 2.4° | -2.4° | 1.5° | -1.5° | 10.0 | 10.0 |

NOTE: All dimensions apply to F-150 with extended cab. Data shown for related vehicles.

Body — Fiberglass Rear Roof

FIBERGLASS REAR ROOF — BRONCO

TRIM PANELS

Torque Specifications — Ranger

Torque Specifications

| | |
|-----------------------------|-----------------------|
| Roof Attaching Screws | 7-10 N·m (6-7 ft-lb) |
| Roof Locating Pins | 8-16 N·m (6-11 ft-lb) |

| | |
|--|--|
| Latch Bracket to Body Attaching Screws — E-180-390 | Door and Channel Arm Rear Attaching Screws — E-180-390 |
|--|--|

| | |
|------------------------------------|---|
| Latch Attaching Screws — E-180-390 | Upholstery Trim Straps Attaching Screws — E-180-390 |
|------------------------------------|---|

| | |
|--|---|
| Latch Handle Handle Attaching Screws — E-180-390 | Upholstery Trim Straps Support Attaching Screws — E-180-390 |
|--|---|

| | |
|------------------------------------|------------------------------------|
| Hinge Attaching Screws — E-180-390 | Panel Bed Retained Nut — E-180-390 |
|------------------------------------|------------------------------------|

| | |
|--|---|
| 81-8 Tongue Specifications — F-150-350, Bronco | Instrument Panel Pad Attaching Screws — F-150-390, Bronco |
|--|---|

| Description | N·m | ft-lb |
|--|-------|-------|
| Handle Assembly Attaching Screws — F-150-350 | 17-27 | 12-20 |
| Brackets Attaching Screws — Bronco | 8-14 | 6-11 |
| Latch Striker Attaching Screws — Bronco | 17-27 | 12-20 |
| Cable Attaching Bolts — Bronco | 26-40 | 20-30 |
| Latch Control Assembly Attaching Screws — Bronco | 8-14 | 6-11 |
| Latch Attaching Screws — Bronco | 3-8 | 2-8 |

Body — Sheet Metal

RANGER

Cab Interior Dimensions — 4x2, 4x4

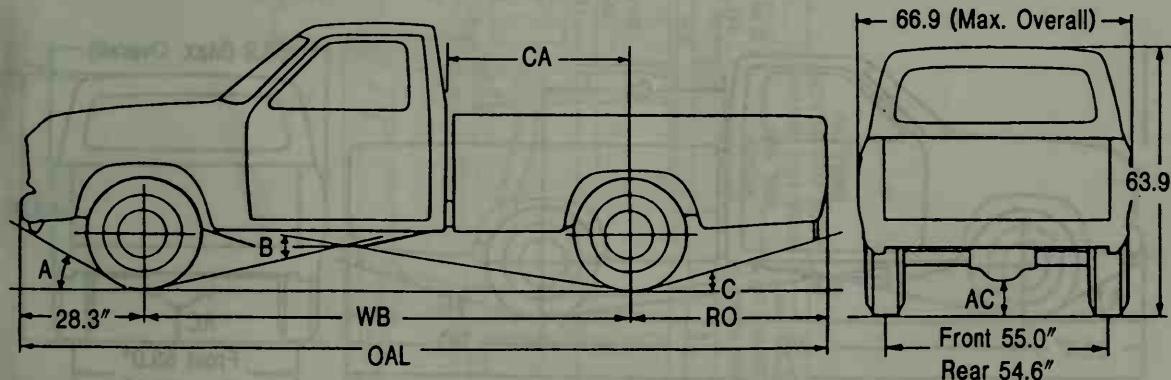
| | |
|--------------------|----------|
| Head Room..... | 39.2 in. |
| Leg Room..... | 42.4 in. |
| Shoulder Room..... | 55.6 in. |
| Hip Room..... | 55.0 in. |

Pickup Box Dimensions — 4x2, 4x4

| | | |
|---------------------------|--------------|--------------|
| Wheelbase | 107.9 in. | 113.9 in. |
| Cargo Box Nominal Size | 6 ft. | 7 ft. |
| Inside Length at Floor | 72.2 in. | 84.2 in. |
| Tailgate Opening at Floor | 54.2 in. | 54.2 in. |
| Max. Width at Floor | 54.3 in. | 54.3 in. |
| Width Between Wheelhouses | 40.4 in. | 40.4 in. |
| Inside Height | 16.5 in. | 16.5 in. |
| Cargo Volume (1) | 37.4 cu. ft. | 43.5 cu. ft. |

(1) Does not include allowance for wheelhouses.

Basic Vehicle Dimensions — 4x2 Styleside Pickups



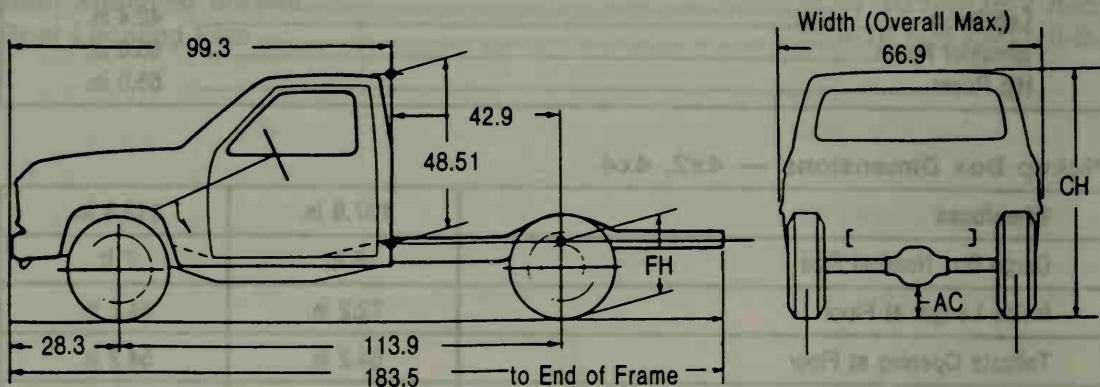
| Wheel-base (WB) | Overall Length (OAL) | Cab-to- Axe (CA) | Rear Overhang (RO) | Axle Clearance (AC) | Approach Angle (A) | Ramp Angle (B) | Departure Angle (C) | Turning Dia. Curb-to-Curb |
|--------------------|----------------------------|------------------------|--------------------------|---------------------------|-----------------------|----------------------|------------------------|------------------------------|
| in. | in. | in. | in. | in. | degrees | degrees | degrees | ft. |
| 107.9 | 175.6 | 36.9 | 39.4 | 6.6 | 21.8° | 17.0° | 17.6° | 36.3 |
| 113.9 | 187.6 | 42.9 | 45.4 | 6.6 | 21.8° | 16.7° | 15.1° | 38.1 |

NOTE: All dimensions except (AC) are with unloaded vehicle. Axle Clearance is with loaded vehicle.

Body — Sheet Metal

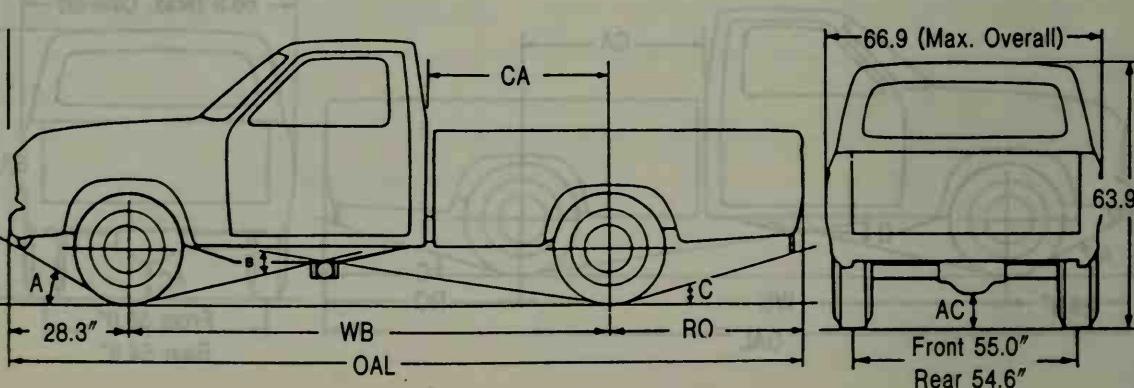
RANGER — CONT'D

Basic Vehicle Dimensions — 4x2 Chassis Cab



| Wheelbase (WB) | Load Height (LH) | | Cab Height (CH) Empty | Overall Length (OAL) | Turning Dia. (Curb-to-Curb) Power Steering |
|----------------|------------------|--------|--------------------------|----------------------|--|
| | Empty | Loaded | | | |
| | in. | in. | | | |
| 113.9 | 21.09 | 14.46 | 64.72 | 183.1 | 38.1 |

Basic Vehicle Dimensions — 4x4 Vehicles



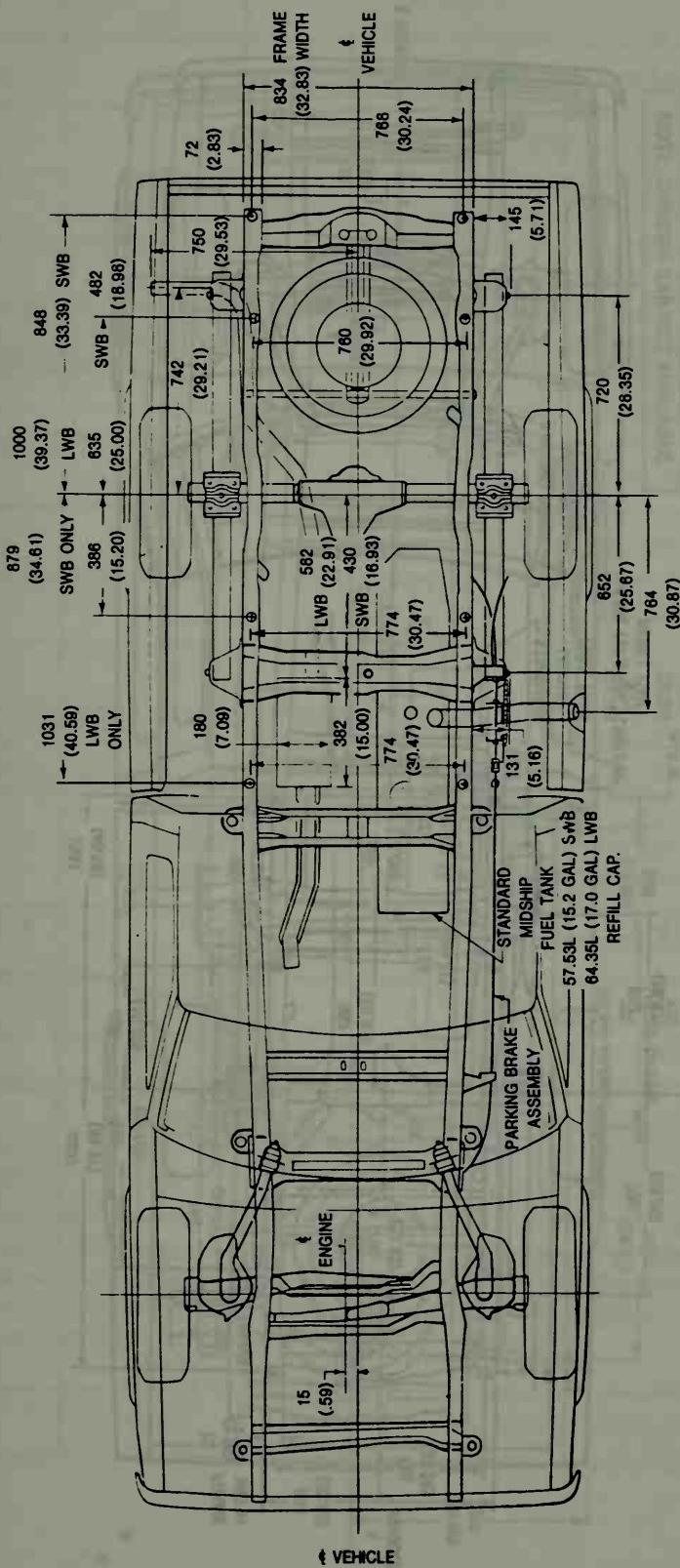
| Wheel-base (WB) | Overall Length (OAL) | Cab-to-Axle (CA) | Rear Overhang (RO) | Axle Clearance (AC) | Approach Angle (A) | Ramp Angle (B) | Departure Angle (C) | Turning Dia. Curb-to-Curb |
|-----------------|----------------------|------------------|--------------------|---------------------|--------------------|----------------|---------------------|---------------------------|
| in. | in. | in. | in. | in. | degrees | degrees | degrees | ft. |
| 107.9 | 175.6 | 36.9 | 39.4 | 6.8 | 29.3 | 25.0 | 22.7 | 36.4 |
| 113.9 | 187.6 | 42.9 | 45.4 | 6.8 | 29.3 | 22.5 | 19.3 | 38.2 |

NOTE: All dimensions except cab height are with loaded vehicle. Cab height is with unloaded vehicle.

Body — Sheet Metal

RANGER — CONT'D

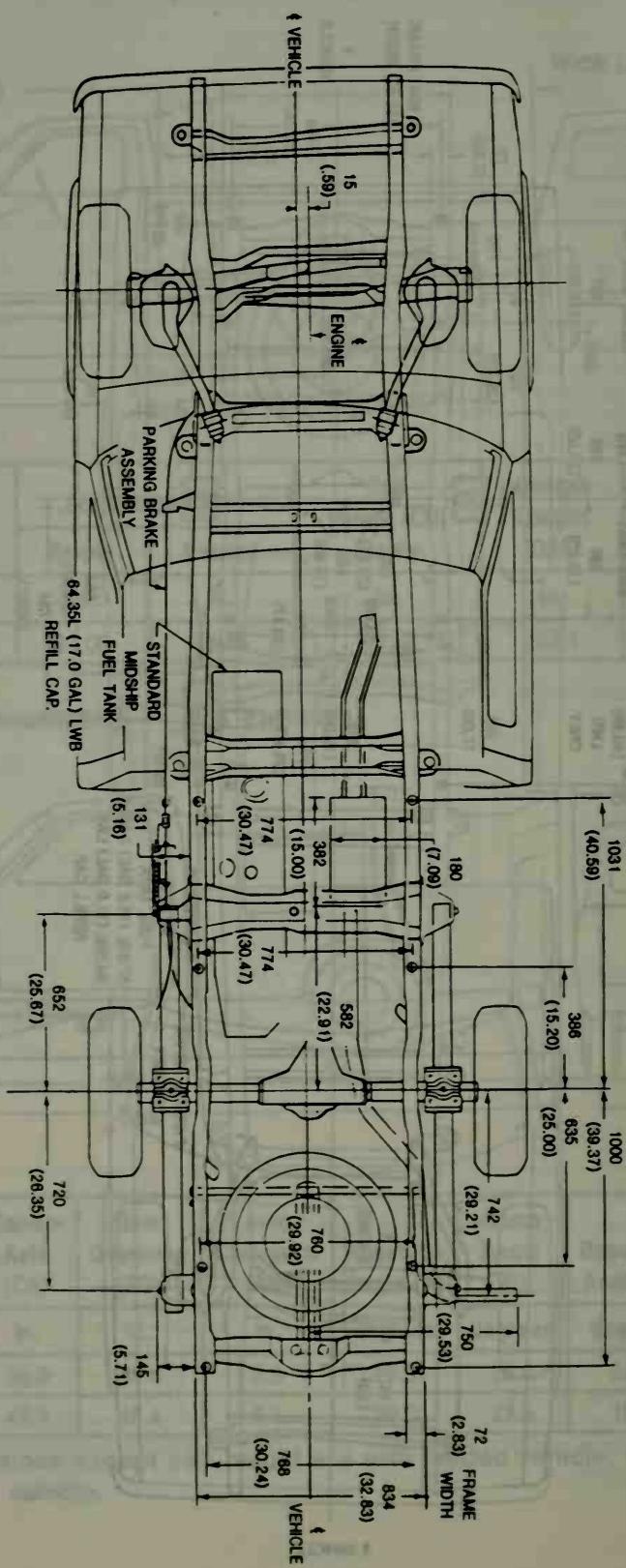
Underbody Specifications — 4x2 Styleside Pickup



Body — Sheet Metal

RANGER — CONT'D

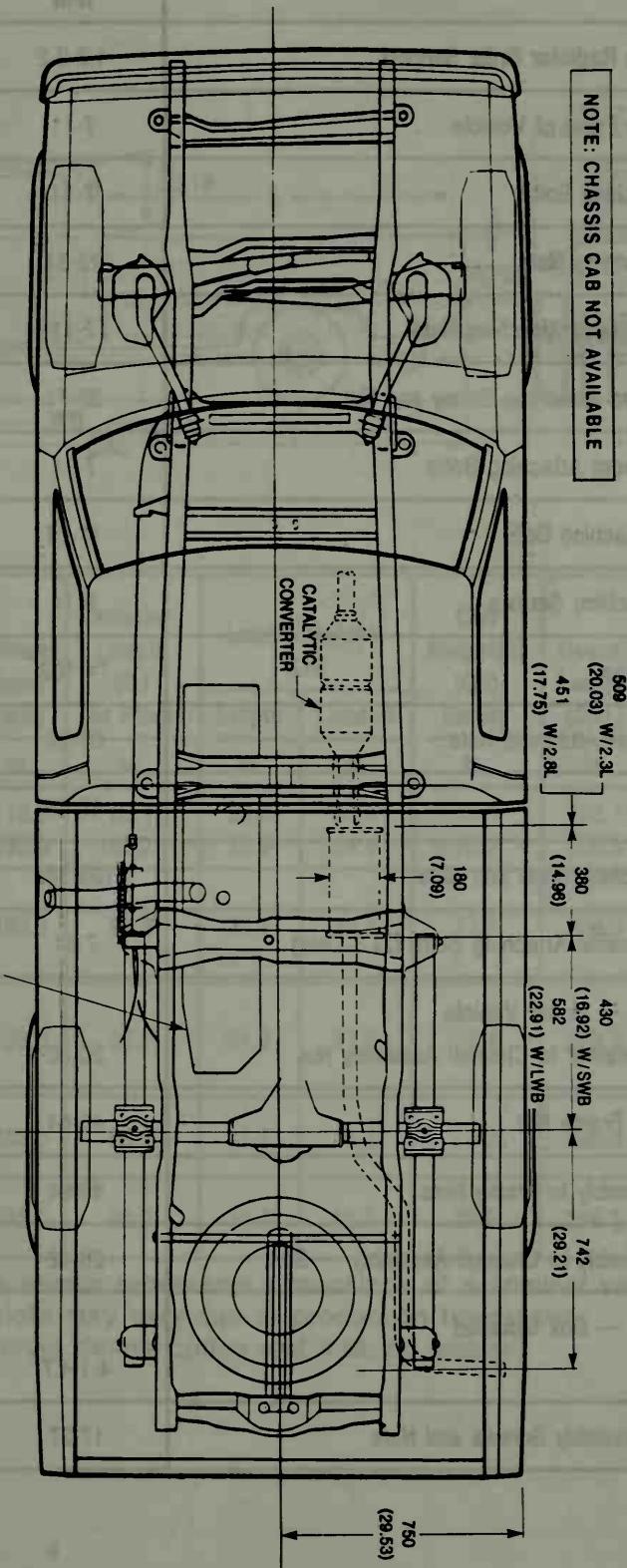
Underbody Specifications — 4x2 Chassis Cab



Body — Sheet Metal

UNDERBODY SPECIFICATIONS — STYLESIDE PICKUP (4x4)

Ranger — Cont'd



Body — Sheet Metal

RANGER — CONT'D

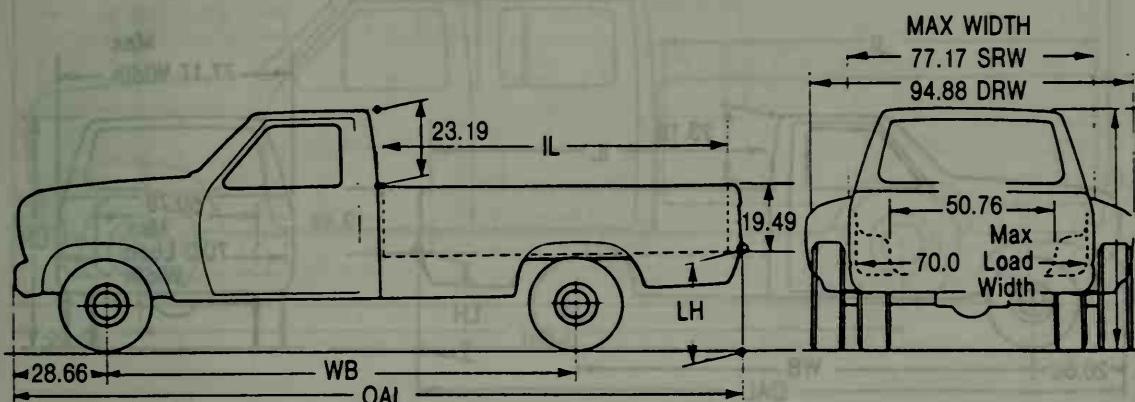
Torque Specifications

| Description | N·m | ft-lb |
|--|---------|---------------|
| Stone Deflector to Radiator Grille Support | 1.3-2.2 | 12-19 (in-lb) |
| Stone Deflector to Front of Vehicle | 7-11 | 5-8 |
| Air Deflector Attaching Bolts | 7-11 | 5-8 |
| Front Bumper Attaching Nuts | 23-31 | 17-23 |
| Front Bumper Extension Attaching Nuts | 7-11 | 5-8 |
| Front Bumper Guard Attaching Screw and Nut | 23-71 | 17-23 |
| Fender Top and Front Attaching Bolts | 7-11 | 5-8 |
| Fender Bottom Attaching Bolt | 17-24 | 38-61 |
| Fender Apron Attaching Screws | 9-14 | 7-20 |
| Body to Frame Bolts | 74-102 | 55-75 |
| Body Mount Bracket Attaching Nuts | 61-92 | 45-68 |
| FESM Bracket Nut | 47-68 | 35-50 |
| Rear Bumper Attaching Bolts and Nuts | 125-185 | 92-136 |
| Rear Bumper Extension Attaching Bolts (XLS Only) | 7-11 | 6-8 |
| Spare Tire Carrier — Under Vehicle | | |
| Support Retainer to Channel Assembly Nut | 20-30 | 15-22 |
| Support to Frame Nut | 40-64 | 30-47 |
| Hinge Assembly to Frame Nuts | 40-64 | 30-47 |
| Hinge Assembly to Channel Assembly — Bolt | 28-42 | 21-30 |
| Spare Tire Carrier — Box Mounted | | |
| Wing Nut | 4.1-4.7 | 3-3.4 |
| Support Assembly Screws and Nuts | 17-27 | 13-19 |

Body — Sheet Metal

VEHICLE DIMENSIONS — REGULAR CAB STYLESIDE PICKUP (4x2)

F-150-350



| Model | Wheel-base (WB) | Interior Length (IL) (At Floor) | Load Height(1) (LH) | | Cab Height(1) (CH) Empty | Overall Length (OAL) | Turning Diameter (Curb to Curb) | |
|--|--------------------|--|------------------------|--------------|-----------------------------------|----------------------------|---------------------------------------|--------------|
| | | | Empty | Loaded | | | Manual | Power |
| F-150 4x2 | 116.8 133.0 | 82.1 98.2 | 29.3 28.9 | 24.4 24.4 | 70.1 70.2 | 192.1 208.3 | 39.4 44.1 | 39.2 43.9 |
| F-250 4x2 (Under 8500 lbs. GVWR) | 133.0 | 98.2 | 32.4 | 26.7 | 73.2 | 208.3 | 45.2 | 45.2 |
| F-250 HD 4x2 (Over 8500 lbs. GVWR) | 133.0 | 98.2 | 31.6 | 27.0 | 73.4 | 208.3 | 45.3(2) | 45.2 |
| F-350 4x2 (Single Rear) | 133.0 | 98.2 | 31.7 | 27.1 | 73.2 | 208.3 | — | 45.2 |
| F-350 4x2 (Dual Rear) | 133.0 | 98.2 | 30.7 | 26.5 | 72.5 | 208.3 | — | 45.2 |

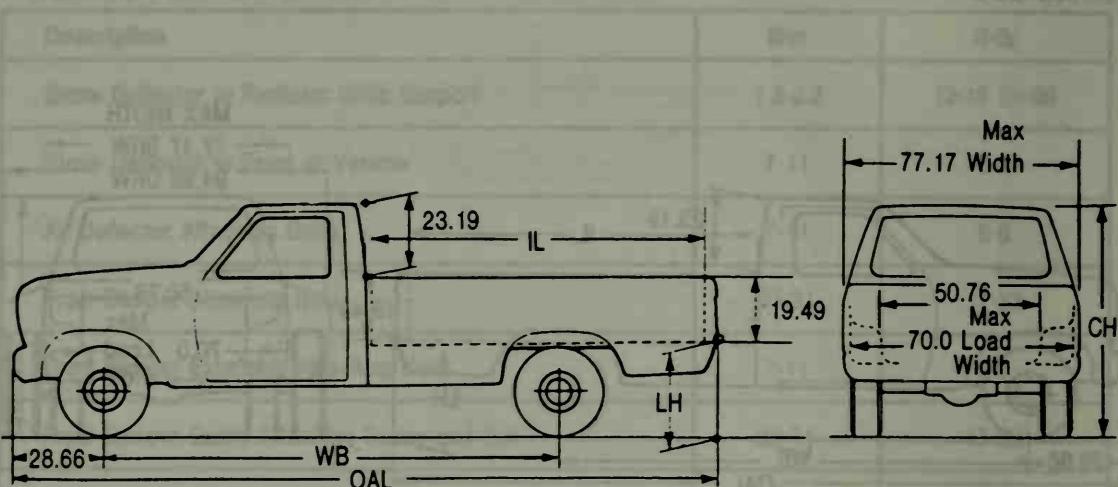
(1) The height data shown represents dimensions of a nominal vehicle with no options. Actual height may vary due to production tolerances.

(2) With power steering delete option and 4.9L I-6 engine.

Body — Sheet Metal

VEHICLE DIMENSIONS — REGULAR CAB STYLESIDE PICKUP (4x4)

F-150-350 — Cont'd



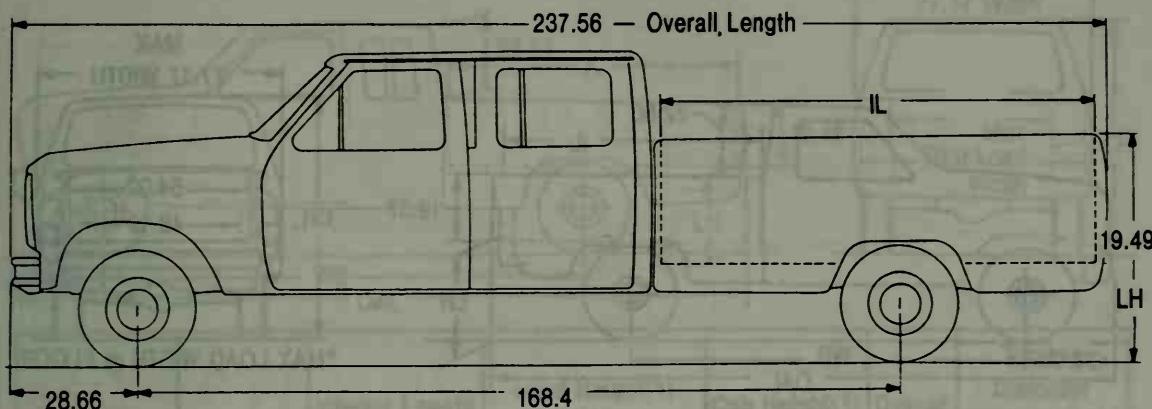
| Model | Wheelbase (WB) in. | Interior Length (IL) (At Floor) | Load Height (LH) | | Cab Height (CH) Empty in. | Overall Length (OAL)(1) | Turning Dia. (Curb to Curb) Power Steering ft. |
|--|--------------------------|--|------------------|---------------|---------------------------------------|-------------------------------|---|
| | | | Empty in. | Loaded in. | | | |
| F-150 4x4 | 116.8 133.0 | 82.1 98.2 | 32.6 32.5 | 27.0 26.9 | 73.4 73.1 | 192.1 208.3 | 40.2 44.9 |
| F-250 4x4 Under 8500 lbs. GVWR | 133.0 | 98.2 | 33.9 | 28.5 | 75.6 | 208.3 | 46.3 |
| F-250 HD 4x4 Over 8500 lbs. GVWR | 133.0 | 98.2 | 34.6 | 28.7 | 76.3 | 208.3 | 46.3 |
| F-350 4x4 | 133.0 | 98.2 | 33.3 | 28.8 | 75.8 | 208.3 | 50.4 |

(1) Excluding rear bumper, if ordered.

Body — Sheet Metal

VEHICLE DIMENSIONS — CREW CAB STYLESIDE PICKUPS (4x2)

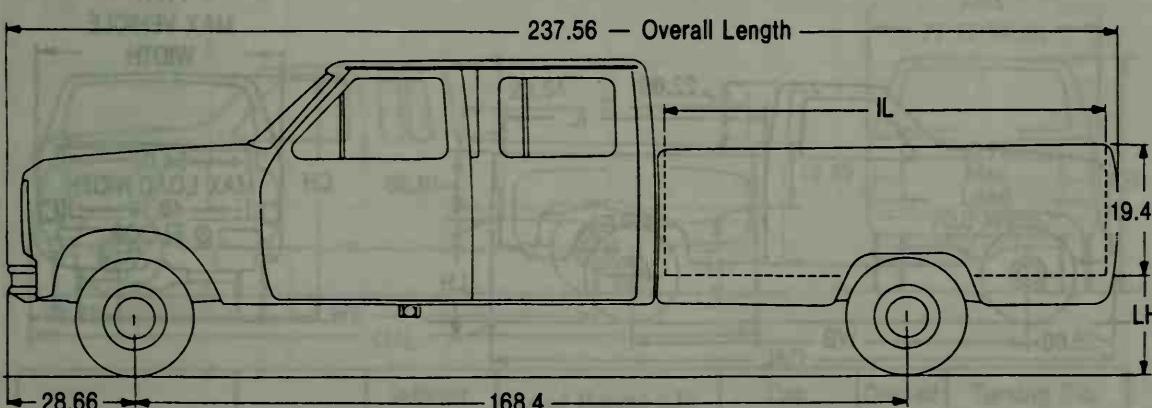
F-150-350 — Cont'd



| Model | Wheelbase (WB) | Interior Length (IL) (At Floor) | Load Height (1) (LH) | | Cab Height(1) (CH) Empty | Overall Length (OAL) | Turning Diameter (Curb to Curb) |
|-----------|-------------------|--|-------------------------|--------|--------------------------------|----------------------------|---------------------------------------|
| | | | Empty | Loaded | | | |
| F-350 4x2 | 168.4 | 98.2 | 32.4 | 27.8 | 74.5 | 243.7 | 56.0 |

(1) The height data shown represents dimensions of a nominal vehicle with no options. Actual height may vary due to production tolerances.

Vehicle Dimensions — Crew Cab Styleside Pickups (4x4)

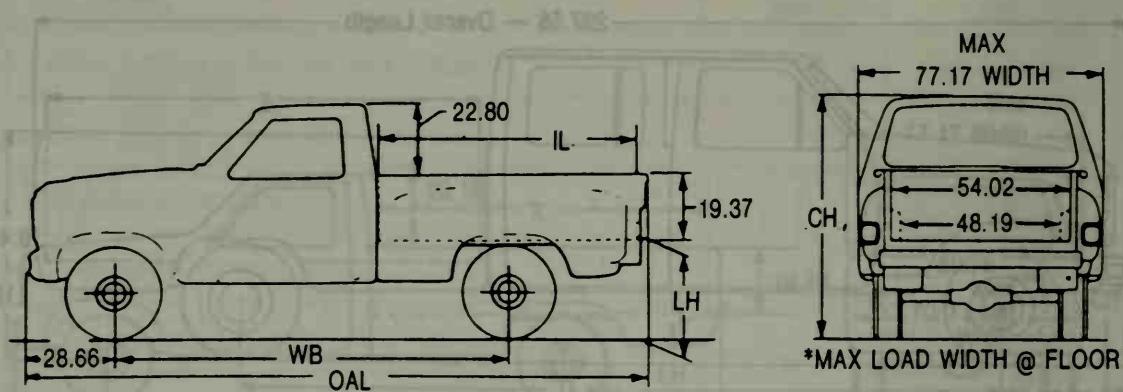


| Model | Wheelbase (WB) | Interior Length (IL) (At Floor) | Load Height (LH) | | Cab Height (CH) Empty | Overall Length (OAL) | Turning Dia. (Curb to Curb) Power Steering |
|-----------|-------------------|---------------------------------------|------------------|--------|-----------------------------|----------------------------|--|
| | | | Empty | Loaded | | | |
| F-350 4x4 | 168.4 | 98.2 | 35.38 | 30.74 | 77.04 | 243.6 | 62.3 |

Body — Sheet Metal

VEHICLE DIMENSIONS — REGULAR CAB FLARESIDE PICKUPS (4x2)

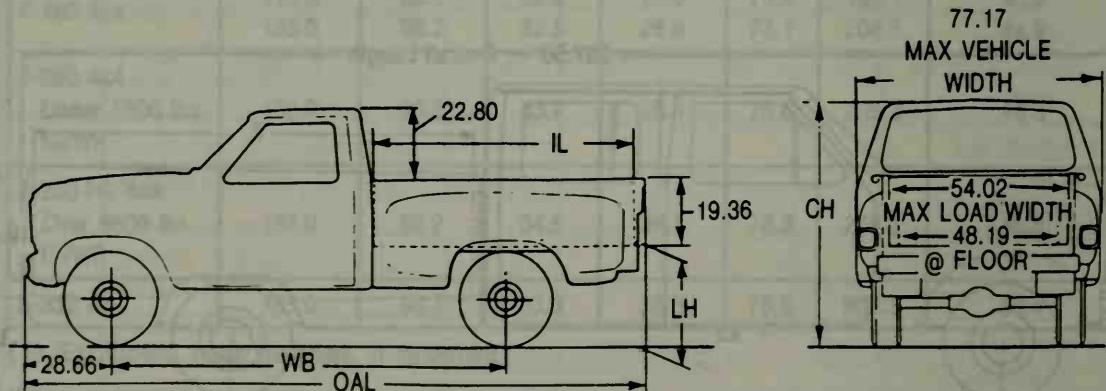
F-150-350 — Cont'd



| Model | Wheelbase (WB) | Interior Length (IL) | Load Height(1) (LH) | | Cab Height(1) (CH) | Overall Length (OAL) | Turning Diameter (Curb to Curb) | |
|-----------|-------------------|----------------------------|------------------------|--------|--------------------------|----------------------------|------------------------------------|-------|
| | | (At Floor) | Empty | Loaded | | | Manual | Power |
| | | in. | in. | in. | | | ft. | ft. |
| F-150 4x2 | 116.8 | 79.8 | 30.1 | 26.2 | 70.1 | 189.3 | 39.4 | 39.2 |

(1) The height data shown represents dimensions of a nominal vehicle with no options. Actual height may vary due to production tolerances.

Vehicle Dimensions — Regular Cab Flareside Pickups (4x4)

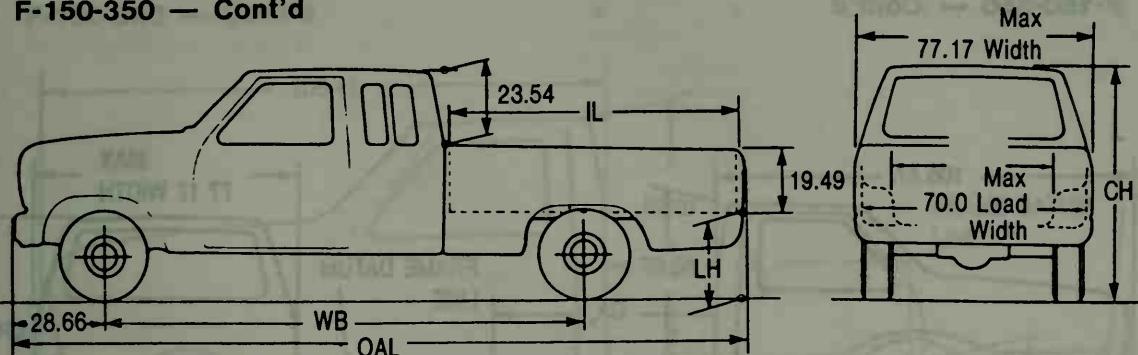


| Model | Wheelbase (WB) | Interior Length (IL) (At Floor) | Load Height (LH) | | Cab Height (CH) Empty | Overall Length (OAL) | Turning Dia. (Curb to Curb) Power Steering | |
|-----------|-------------------|---------------------------------------|------------------|------|-----------------------------|----------------------------|--|-----|
| | | Empty | Loaded | in. | | | in. | ft. |
| | | in. | in. | in. | | | in. | ft. |
| F-150 4x4 | 116.8 | 79.8 | 33.5 | 28.8 | 73.4 | 189.3 | 40.2 | |

Body — Sheet Metal

VEHICLE DIMENSIONS — SUPER CAB STYLESIDE PICKUPS (4x2)

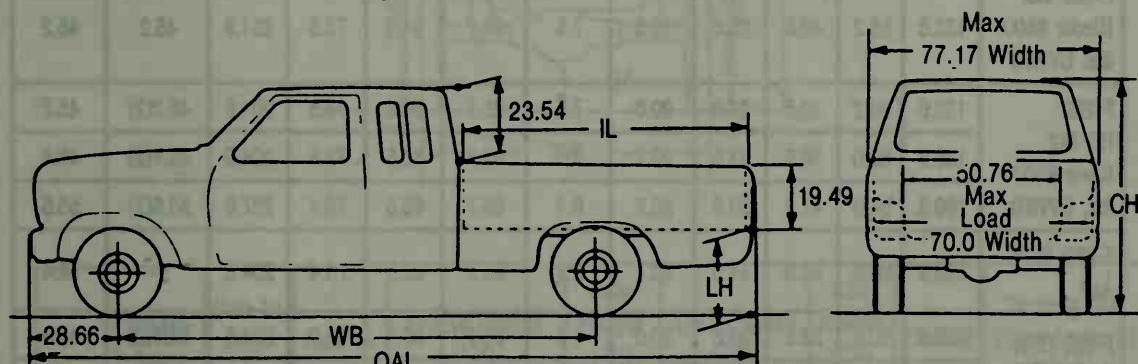
F-150-350 — Cont'd



| Model | Wheelbase (WB) | Interior Length (IL) (At Floor) | Load Height(1) (LH) | | Cab Height(1) (CH) Empty | Overall Length (OAL) | Turning Diameter (Curb to Curb) | |
|--|-------------------|---------------------------------------|------------------------|--------------|--------------------------------|----------------------------|---------------------------------------|--------------|
| | | | Empty | Loaded | | | Manual | Power |
| in. | in. | in. | in. | in. | in. | in. | ft. | |
| F-150 4x2 | 138.8 155.0 | 82.1 98.2 | 30.6 30.3 | 25.4 25.4 | 71.5 71.5 | 214.1 230.3 | | 45.7 50.4 |
| F-250 HD 4x2 (Over 8500 lbs. GVWR) | 155.0 | 98.2 | 31.4 | 27.1 | 73.6 | 230.3 | 51.9 | 51.8 |

(1) The height data shown represents dimensions of a nominal vehicle with no options. Actual height may vary due to production tolerances.

Vehicle Dimensions — Super Cab Styleside Pickups (4x4)

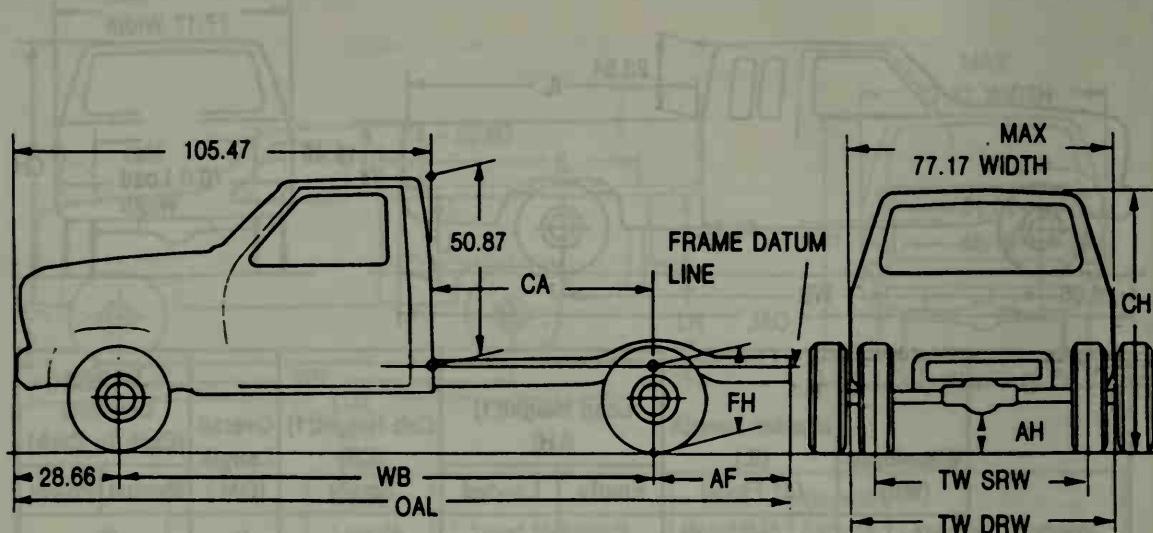


| Model | Wheelbase WB) | Interior Length (IL) (At Floor) | Load Height (LH) | | Cab Height (CH) Empty | Overall Length (OAL) | Turning Dia. (Curb to Curb) | |
|--------------------------------------|------------------|---------------------------------------|------------------|--------|-----------------------------|----------------------------|--------------------------------|------|
| | | | Empty | Loaded | | | Power Steering | ft. |
| in. | in. | in. | in. | in. | in. | in. | ft. | |
| F-150 4x4 | 155 | 98.2 | 32.1 | 26.9 | 73.3 | 230.3 | | 51.5 |
| F-250 4x4 Under 8500 lbs. GVWR | 155 | 98.2 | 34.2 | 29.1 | 75.2 | 230.3 | | 57.8 |

Body — Sheet Metal

VEHICLE DIMENSIONS — CHASSIS CAB (4x2)

F-150-350 — Cont'd



| Model | Wheel-base (WB) in. | Cab to Axle (CA) in. | Axle to Frame (AF) in. | Frame Height (FH)(1) | | Axle Height (AH) Loaded in. | Tread Width (TW) | | Cab Height (CH)(1) Empty in. | Overall Length (OAL) in. | Turning Diameter (Curb to Curb) | |
|---------------------------------------|------------------------|-------------------------|---------------------------|----------------------|---------------|-----------------------------------|------------------|-------------|------------------------------------|-----------------------------|---------------------------------|--------------|
| | | | | Empty in. | Loaded in. | | Front in. | Rear in. | | | Manual ft. | Power ft. |
| F-250 4x2 (Under 8500 lbs. GVWR) | 133.0 | 56.2 | 40.5 | 25.6 | 19.5 | 7.5 | 65.7 | 64.3 | 73.5 | 201.9 | 45.2 | 45.2 |
| F-250 HD 4x2 (Over 8500 lbs. GVWR) | 133.0 | 56.2 | 40.5 | 24.3 | 20.0 | 7.5 | 65.7 | 64.3 | 73.5 | 201.9 | 45.3(2) | 45.2 |
| | 136.8 | 60.0 | 38.5 | 23.9 | 20.7 | 8.1 | 65.7 | 63.5 | 73.5 | 204.0 | 46.4(2) | 46.4 |
| | 160.8 | 84.0 | 47.5 | 23.8 | 20.7 | 8.1 | 65.7 | 63.5 | 73.4 | 237.0 | 53.6(2) | 53.5 |
| F-350 SRW 4x2 | 136.8 | 60.0 | 38.5 | 24.0 | 20.7 | 8.1 | 65.7 | 63.5 | 73.4 | 204.0 | — | 46.4 |
| F-350 DRW 4x2 | 136.8 | 60.0 | 38.5 | 23.6 | 20.0 | 7.7 | 65.7 | 65.1 | 72.9 | 204.0 | 46.4(2) | 46.3 |
| | 160.8 | 84.0 | 47.5 | 23.5 | 20.0 | 6.3 | 65.7 | 65.1 | 72.7 | 237.0 | 53.6(2) | 53.5 |

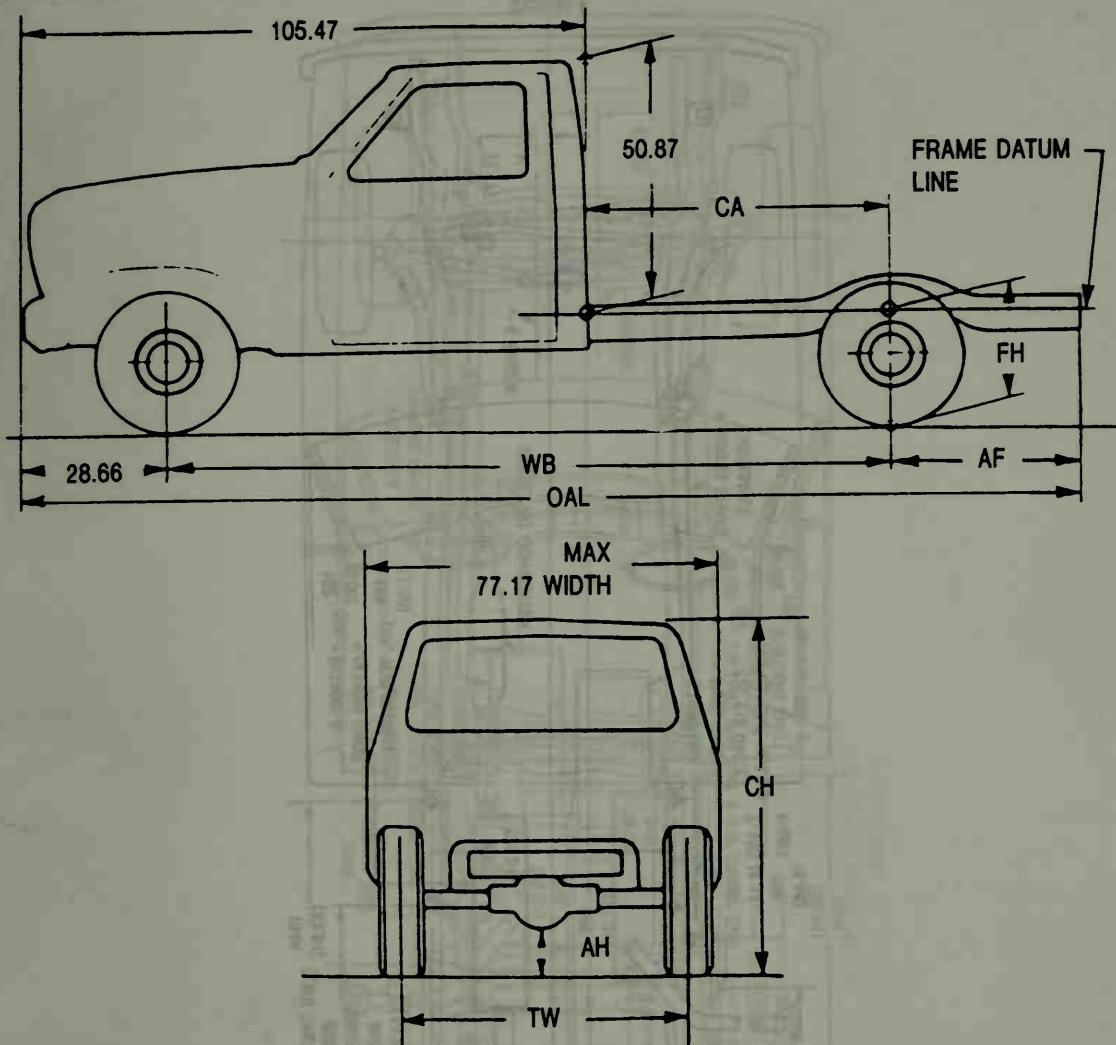
(1) The height data shown represents dimensions of a nominal vehicle with no options. Actual height may vary due to production tolerances.

(2) With Power Steering Delete Option and 4.9L I-6 engine.

Body — Sheet Metal

VEHICLE DIMENSIONS — CHASSIS CAB (4x4)

F-150-350 — Cont'd

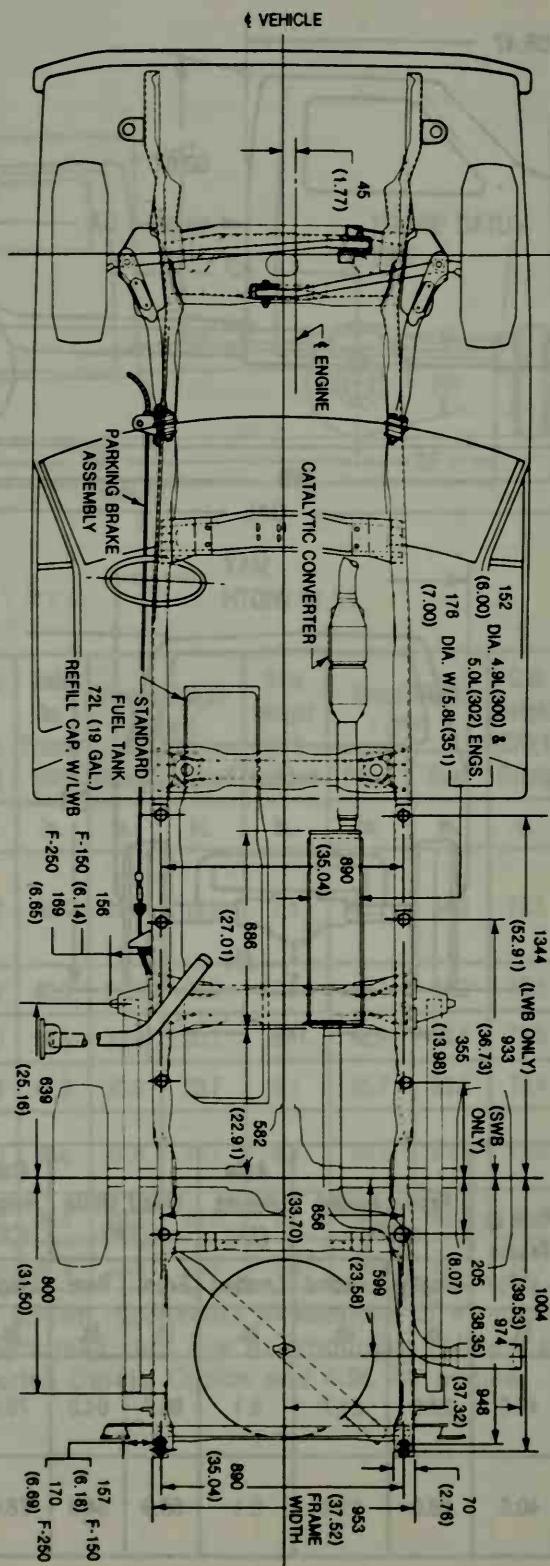


| Model | Wheel-base (WB) | Cab to Rear Axle (CA) | Axle to Frame (AF) | Frame Height (FH) | | Axle Height (AH) Loaded | Tread Width (TW) | | Cab Height (CH) Empty | Overall Length (OAL) | Turning Dia. (Curb-to-Curb) Power Steering |
|--------------|--------------------|--------------------------------|--------------------------|----------------------|--------|----------------------------------|---------------------|------|--------------------------------|----------------------------|---|
| | | | | Empty | Loaded | | Front | Rear | | | |
| F-250 4x4 | 133 | 56.2 | 40.5 | 27.6 | 21.7 | 8.1 | 66.7 | 64.3 | 76.5 | 201.9 | 46.3 |
| F-350 4x4 | 133 | 56.2 | 40.5 | 26.0 | 21.8 | 8.1 | 66.9 | 64.3 | 76.0 | 201.9 | 50.4 |

Body — Sheet Metal

UNDERBODY SPECIFICATIONS — F-150-250 REGULAR CAB STYLESIDE (4x2)

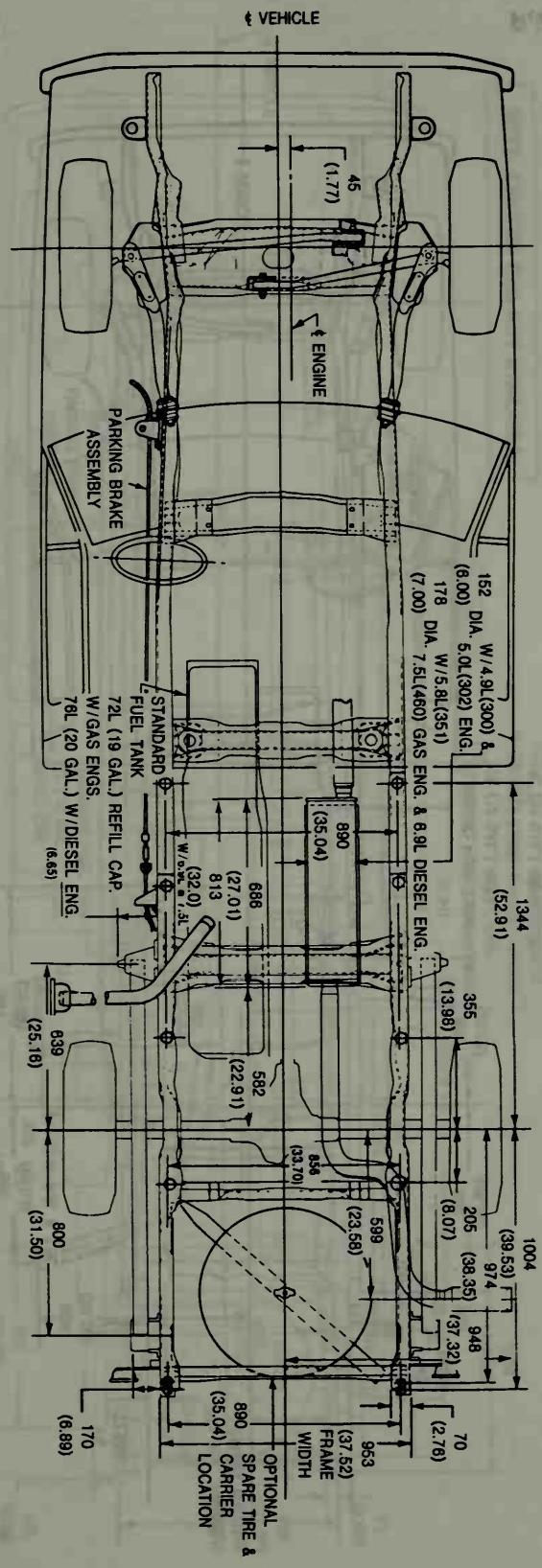
F-150-350 — Cont'd



Body — Sheet Metal

**UNDERBODY SPECIFICATIONS — F-250 H.D./F-350 REGULAR CAB —
CHASSIS AND STYLESIDE — (4x2) — 133 INCH WHEELBASE**

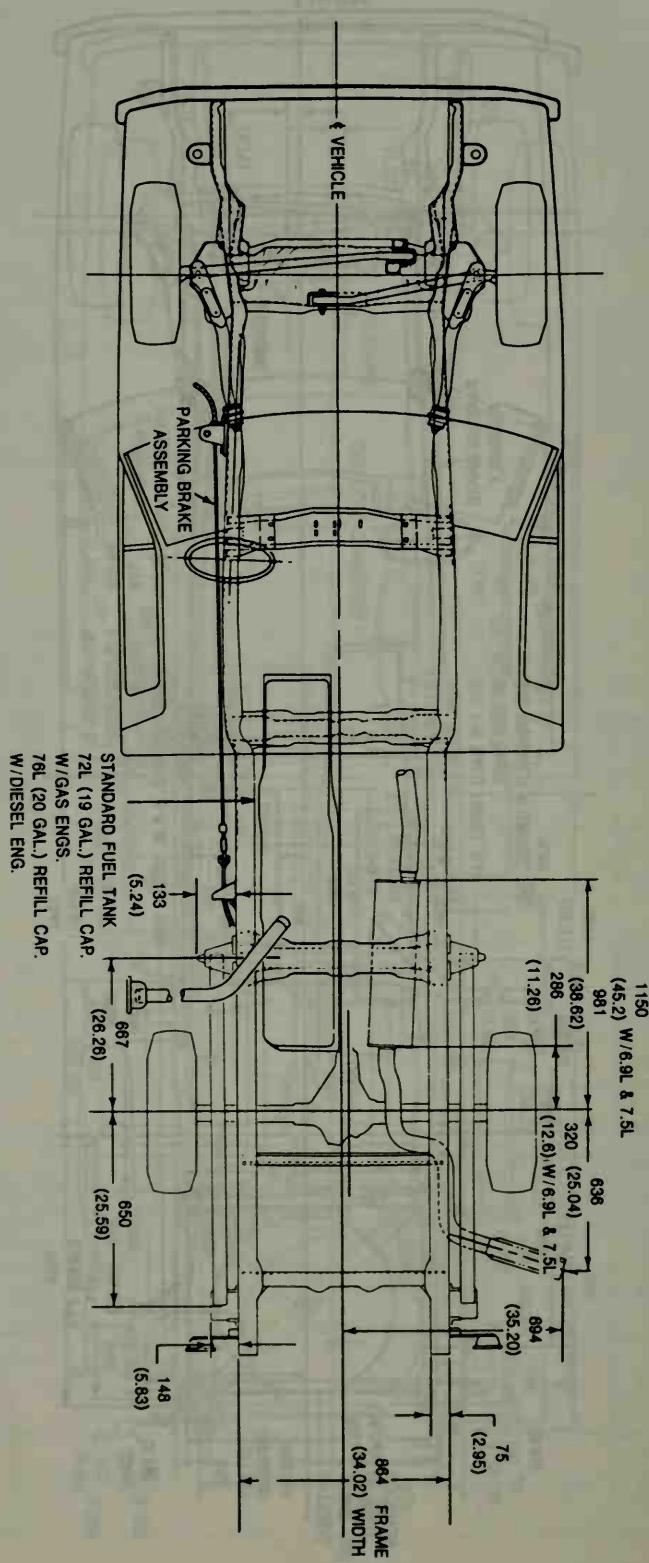
F-150-350 — Cont'd



Body — Sheet Metal

**UNDERBODY SPECIFICATIONS — F-250 H.D., F-350 REGULAR CHASSIS CAB
(4x2) — 136.8 INCH AND 160.8 INCH WHEELBASES**

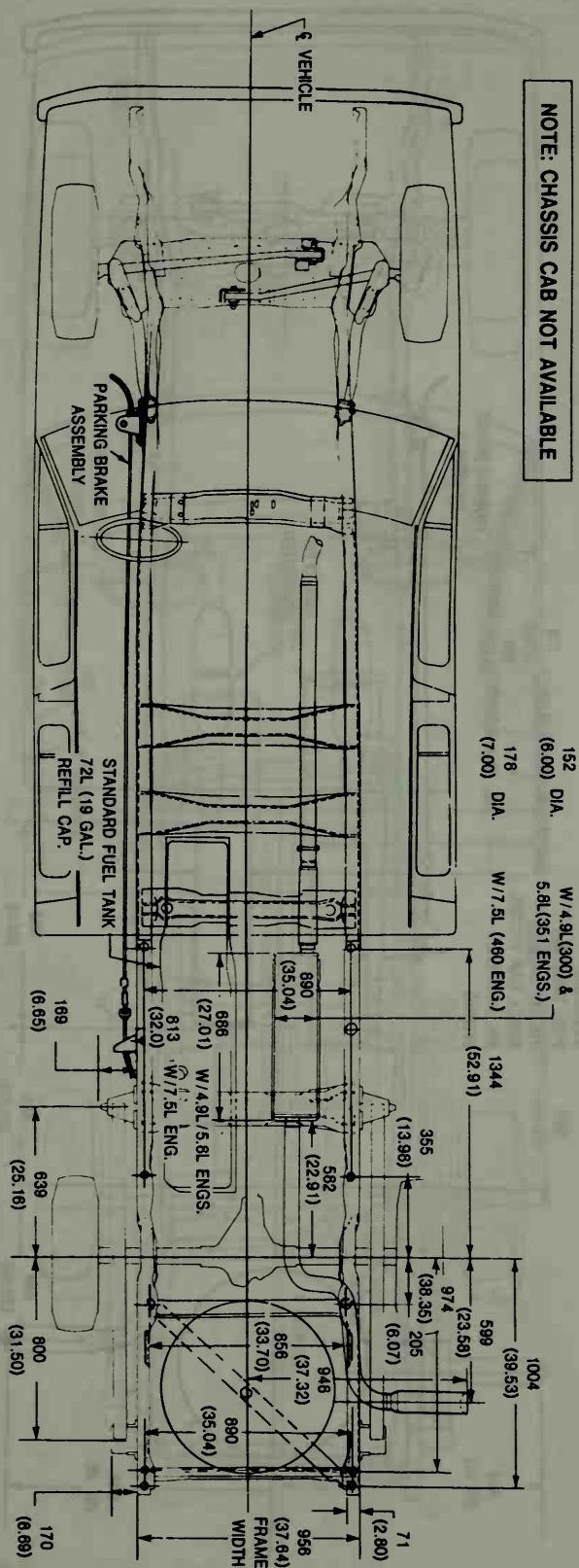
F-150-350 — Cont'd



Body — Sheet Metal

UNDERBODY SPECIFICATIONS — F-350 CREW CAB STYLESIDE (4x2)

F-150-350 — Cont'd



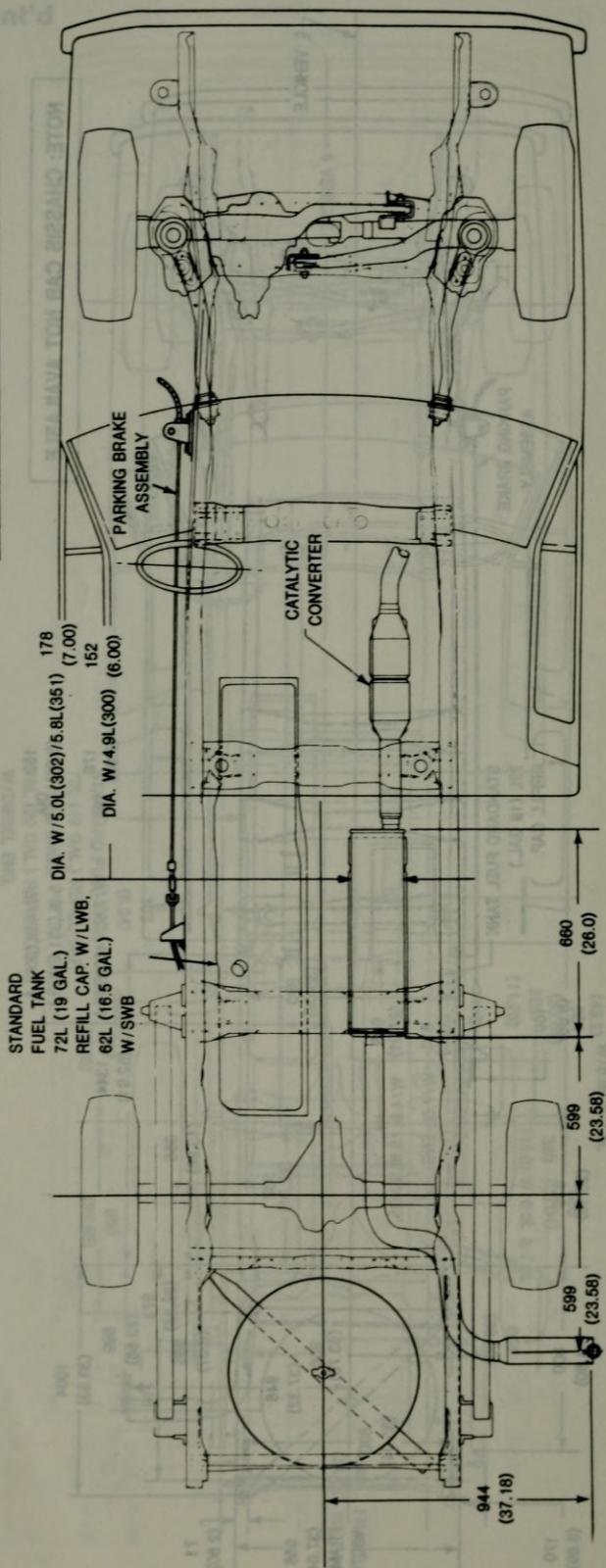
Body — Sheet Metal

UNDERBODY SPECIFICATIONS — F-150 REGULAR CAB (4x4)

F-150-350 — Cont'd

F-150-350 — Cont'd

NOTE: CHASSIS CAB NOT AVAIL.

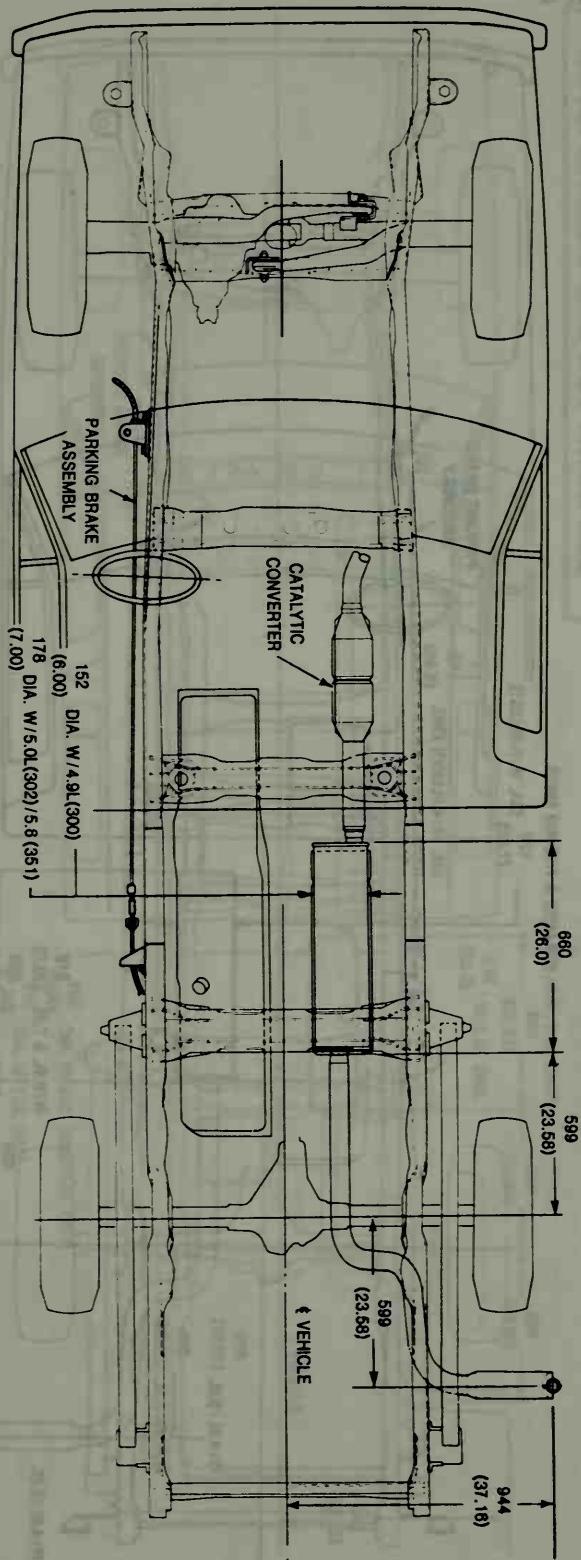


Body — Sheet Metal

UNDERBODY SPECIFICATIONS — F-250 REGULAR CAB STYLESIDE (4x4)

F-150-350 — Cont'd

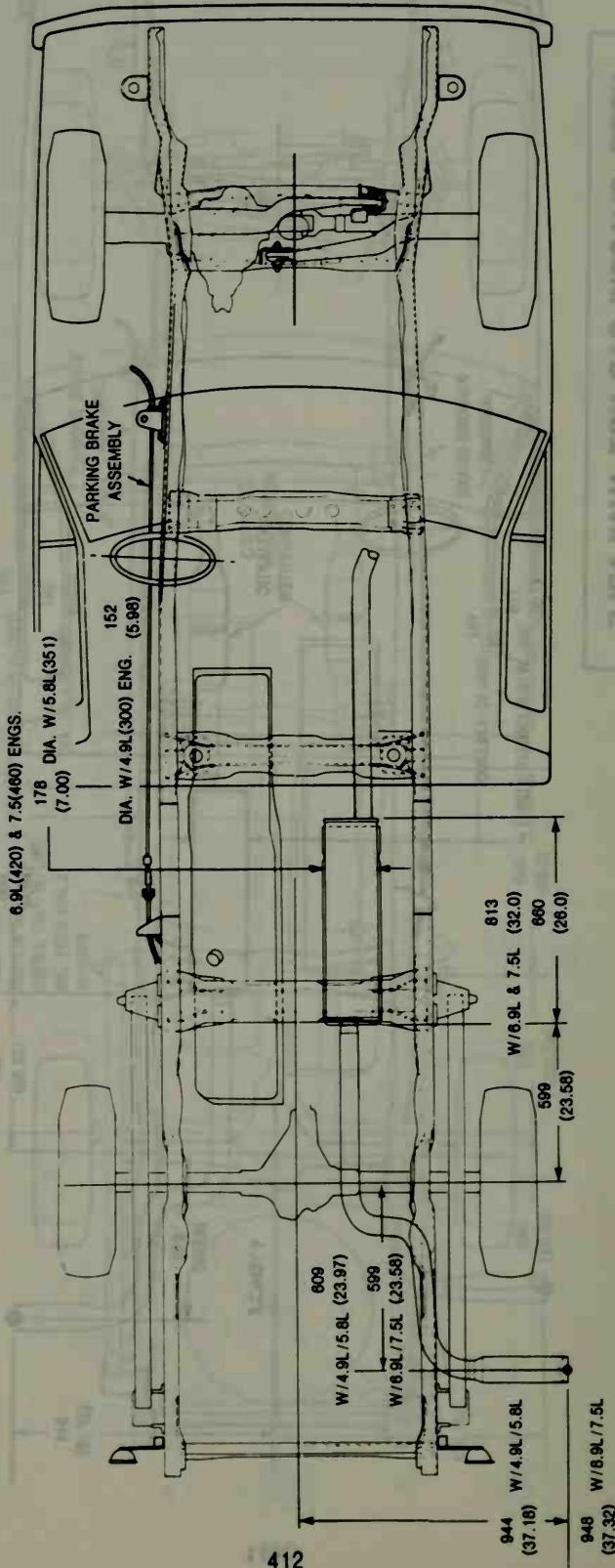
NOTE: CHASSIS CAB NOT AVAILABLE



Body — Sheet Metal

UNDERBODY SPECIFICATIONS — F-250 H.D./F-350 REGULAR CHASSIS CAB AND STYLESIDE (4x4)

F-150-350 — Cont'd

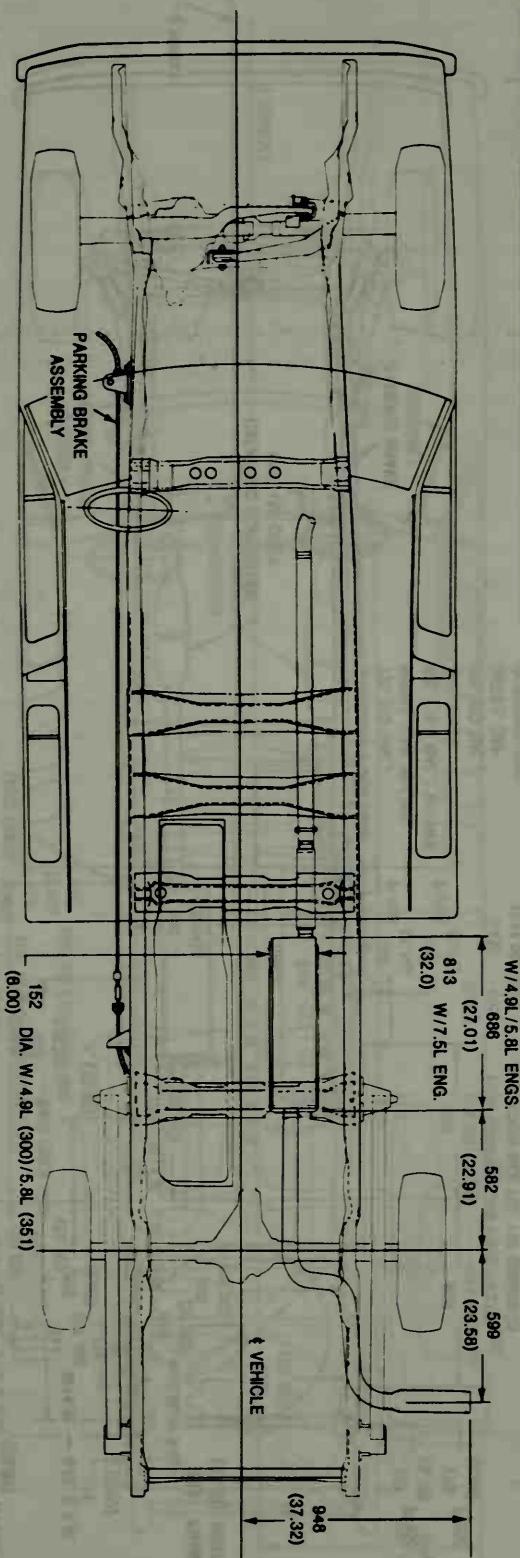


Body — Sheet Metal

UNDERBODY SPECIFICATIONS — F-350 CREW CAB (4x4)

F-150-350 — Cont'd

NOTE: CHASSIS CAB NOT AVAILABLE

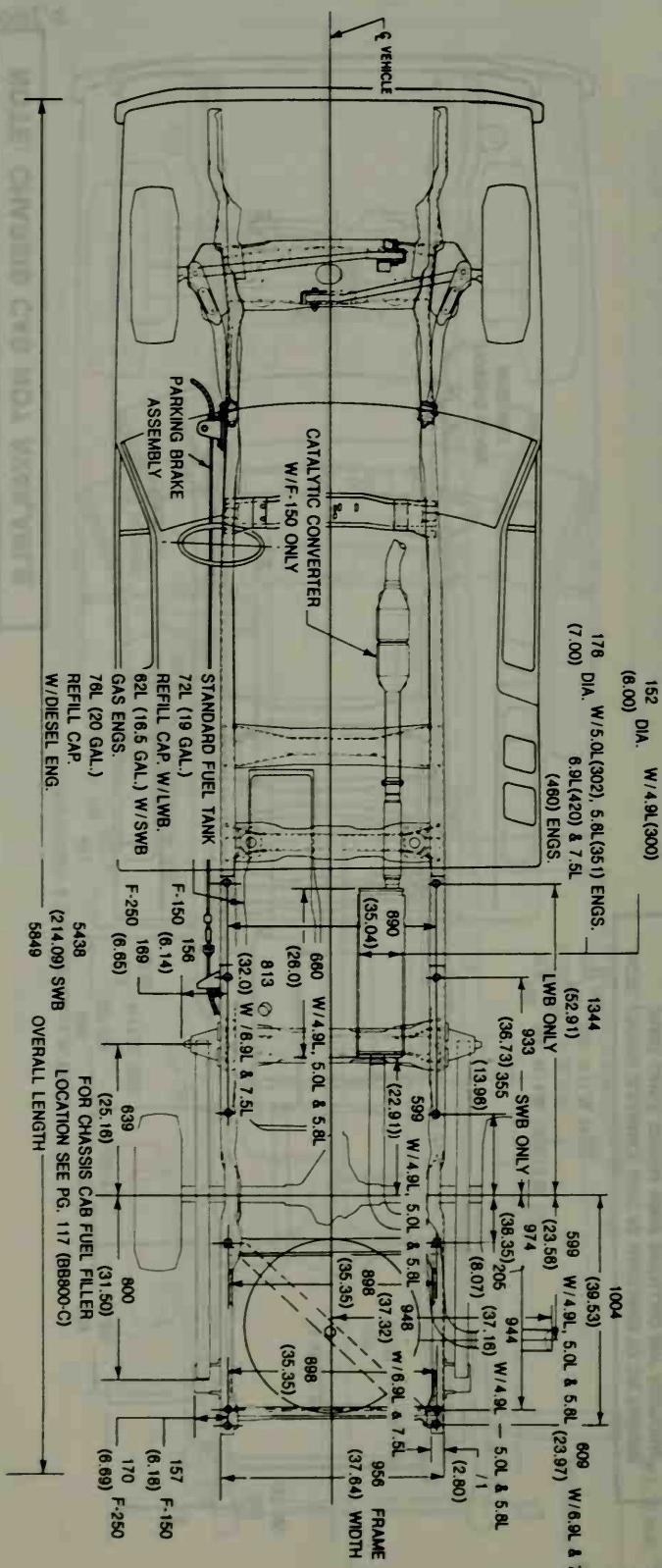


NOTE: PROPER CLEARANCE MUST BE MAINTAINED TO THE PARKING BRAKE CABLE SYSTEM WHEN INSTALLING ANY ADDITIONAL EQUIPMENT. (I.E., TOOL BOXES, STAKE BODIES, ETC.)

Body — Sheet Metal

UNDERBODY SPECIFICATIONS — F-150/250 SUPERCAB STYLESIDE (4x2)

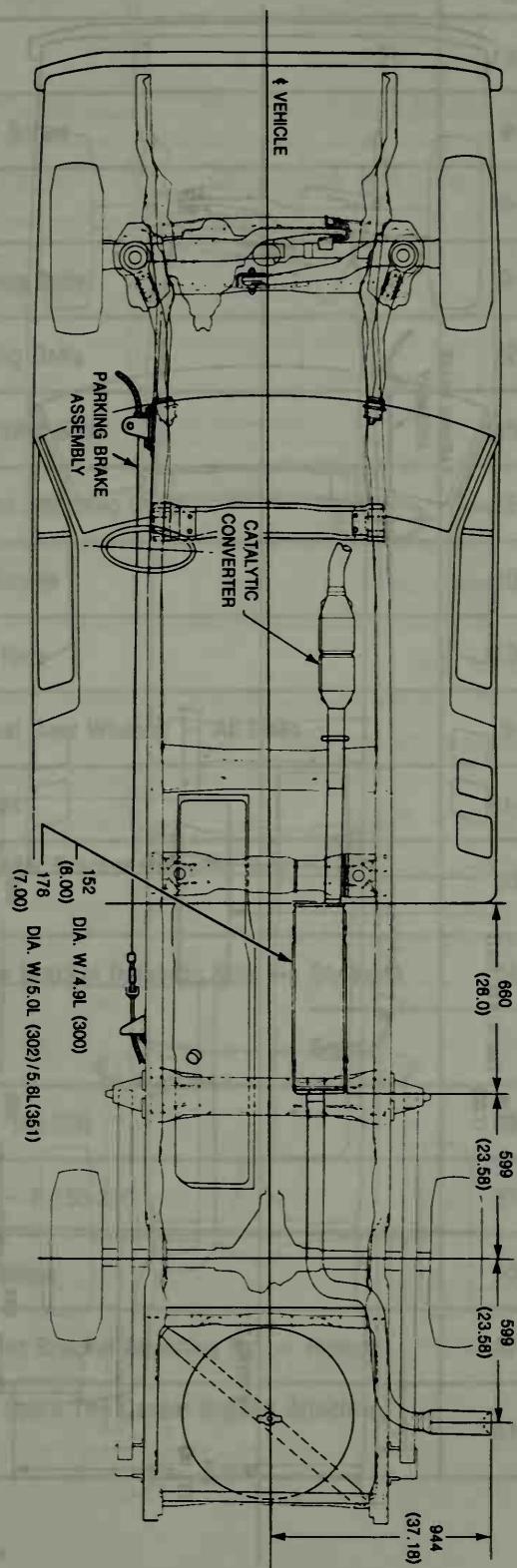
F-150-350 — Cont'd



Body — Sheet Metal

UNDERBODY SPECIFICATIONS — F-150 SUPER CAB (4x4) — 155 INCH WHEELBASE

F-150-350 — Cont'd



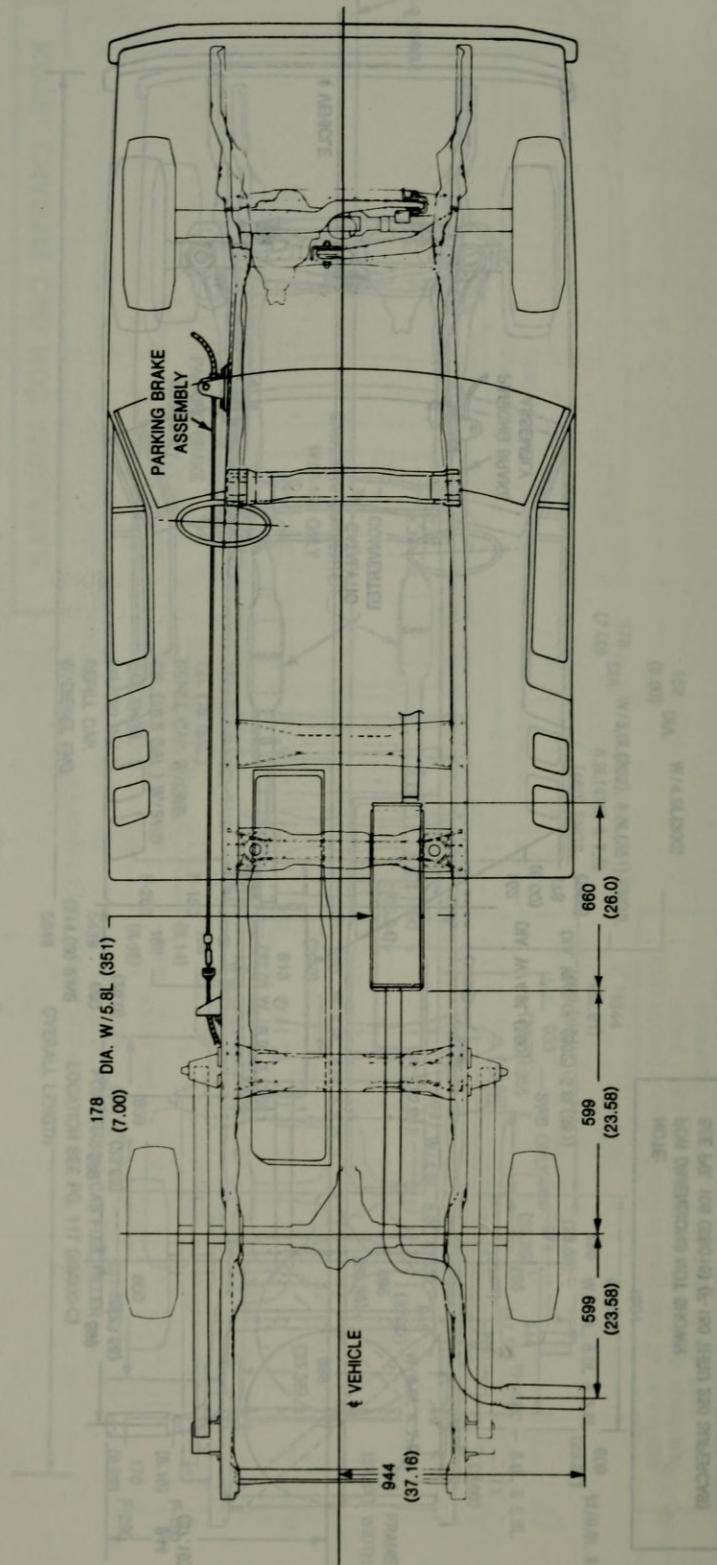
Body — Sheet Metal

UNDERBODY SPECIFICATIONS — F-250 SUPERCAB (4x4) — 155 INCH WHEELBASE

F-150-350 — Cont'd

F-150-350 — Cont'd

F-150-350 — Cont'd



Body — Sheet Metal

TORQUE SPECIFICATIONS

F-150-350, Bronco

| Description | N·m | ft-lb |
|--|---------|---------------|
| Grille Attaching Screws | 2-4 | 1.5-2.9 |
| Latch Assembly Attaching Screw | 9-14 | 7-10 |
| Brace Attaching Screws | 9-14 | 7-10 |
| Front Fender Front Attaching Bolts | 9-14 | 7-10 |
| Front Fender Rear Attaching Bolts | 22-34 | 17-25 |
| Front Fender Bottom Attaching Bolts | 45-70 | 34-51 |
| Front Fender Reinforcement Attaching Bolts | 45-70 | 34-51 |
| Battery Brace Attaching Screws | 10-15 | 8-11 |
| Battery Bracket Retaining Nuts | 2.3-4.5 | 20-40 (in-lb) |
| Rear Fender — F-350 (Dual Rear Wheels) — All Bolts | 9-14 | 7-10 |
| Rear Bumper Attaching Nuts | 81-122 | 60-90 |
| Rear Contour Bumper to Outer Bracket Retaining Nuts — Styleside | 23-31 | 17-23 |
| Rear Step Bumper to Outer Bracket Retaining Nuts — Styleside | 34-54 | 25-40 |
| | Bronco | 81-122 |
| Body to Frame Bolts — F-150-350 | 68-94 | 50-70 |
| Front Body to Frame Nut — F-150-350 | 37-50 | 27-37 |
| Body to Frame Bolts — Bronco | 55-67 | 40-50 |
| Second Front Body Mounting Bracket Attaching Nut — Bronco | 37-50 | 27-37 |
| Under Frame Swing Away Spare Tire Carrier Support Attaching Nuts — F-150-350 | 51-67 | 37-50 |

Body — Sheet Metal

F-150-350, BRONCO — CONT'D

Torque Specifications — Cont'd

| Description | N·m | Ft-Lb |
|--|---------|---------------|
| Slide-Out Spare Tire Carrier — F-150-350 | | |
| Stop Bar Support Front Attaching Nut | 82-128 | 60-95 |
| Stop Bar Support Rear Attaching Nut | 17-27 | 12-20 |
| Spare Tire Carrier — Box Mounted — F-150-350 | | |
| Wing Nut | 4.1-4.7 | 36-41 (in-lb) |
| Support Assembly Nuts | 22-34 | 16-25 |
| Spare Tire Carrier — Swing-Away — Bronco | | |
| Wing Nut | 2.8-3.3 | 25-30 (in-lb) |
| Bumper Retaining Nuts | 8-13 | 6-10 |
| Hinge Attaching Bolts | 17-27 | 12-20 |
| Support Assembly Attaching Bolts | 17-27 | 12-20 |
| Spare Tire Carrier — Inside — Bronco | | |
| Support Bracket Attaching Screws | 8-14 | 6-11 |
| Support Arm Attaching Bolts | 30-43 | 22-32 |

Body — Sheet Metal

BRONCO

Seating and Cargo Volume

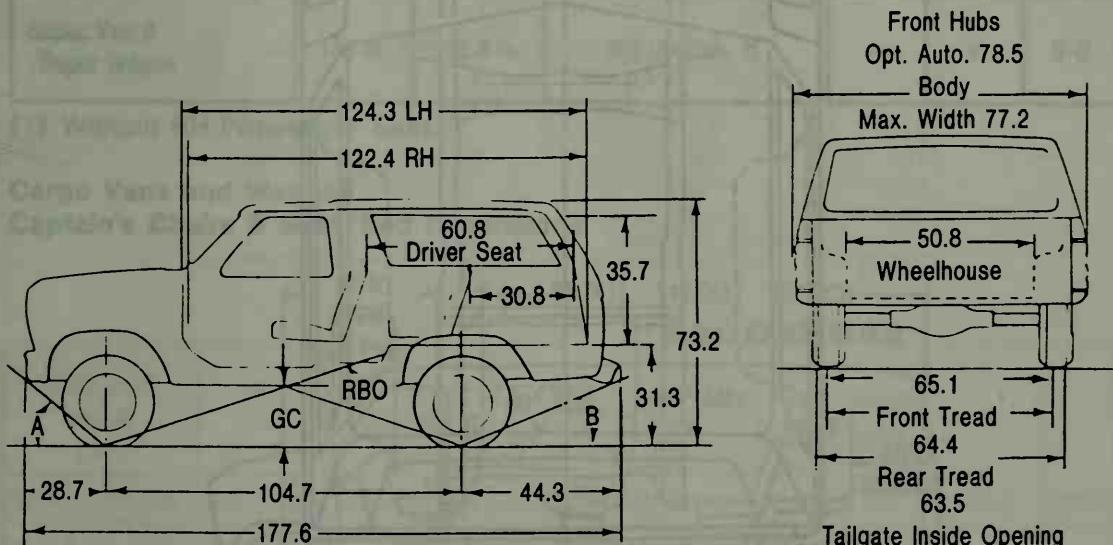
| Seating Options | No. of Occupants | Minimum Weight Capacity(1) (lbs.) | Maximum Cargo Volume (cu. ft.) | Cargo Area Length(2) (in.) |
|---|------------------|-----------------------------------|--------------------------------|----------------------------|
| Standard Front Bucket Seats or Optional Dual Captain's Chairs plus Rear Bench Seat ⁽³⁾ | | | | |
| — Rear Seat Upright | 5 | 850 | 51.8 | 30.8 |
| — Rear Seat Folded | 2 | 850 | 81.6 | 60.8 |
| Front Bench Seat plus Rear Bench Seat ⁽³⁾ | | | | |
| — Rear Seat Upright | 6 | 1000 | 51.8 | 30.8 |
| — Rear Seat Folded | 3 | 1000 | 81.6 | 60.8 |

(1) Minimum occupant, luggage and cargo combined weight capacity as provided by Computer-Selected GVWR for the specific vehicle.

(2) Length from tailgate to nearest upright seat-back.

(3) Rear bench seat delete available.

Vehicle Dimensions

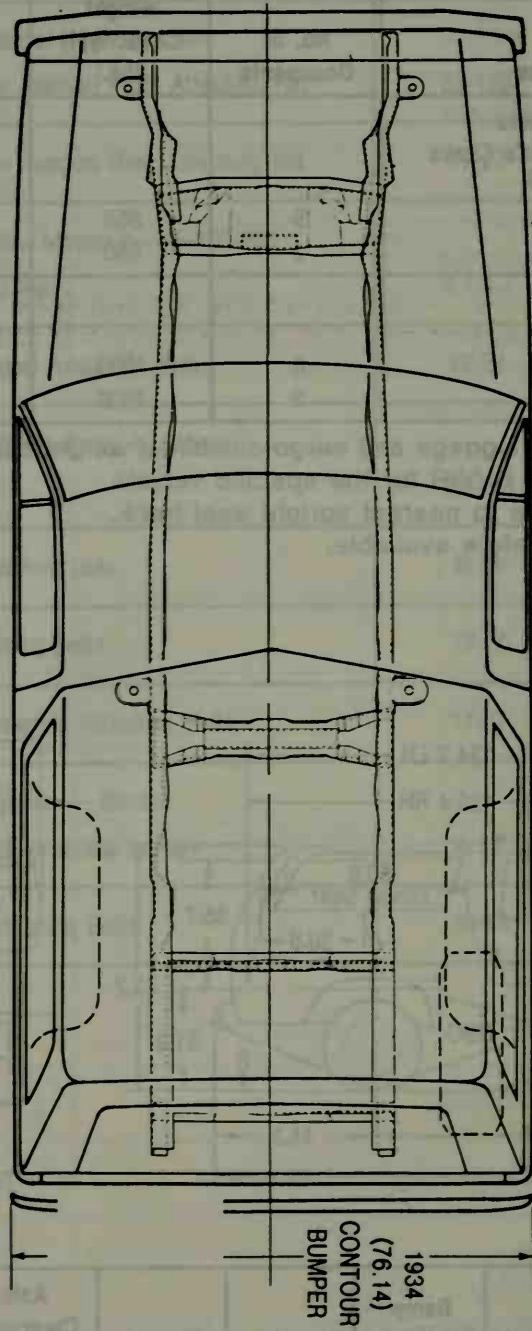


| Model | | Approach Angle (A) | Ramp Breakover Angle (RBO) | Departure Angle (B) | Ground Clearance (GC) | Axle Clearance (AC) | | Base Curb Weight (lbs.) | | |
|--------|-----------|--------------------|----------------------------|---------------------|-----------------------|---------------------|------|-------------------------|------|-------|
| Series | Occupants | | | | | Front | Rear | Front | Rear | Total |
| U-150 | 5 | 34.1° | 20.2° | 20.6° | 9.1" | 6.3" | 6.6" | 2143 | 2168 | 4311 |

Body — Sheet Metal

BRONCO — CONT'D

Underbody Specifications

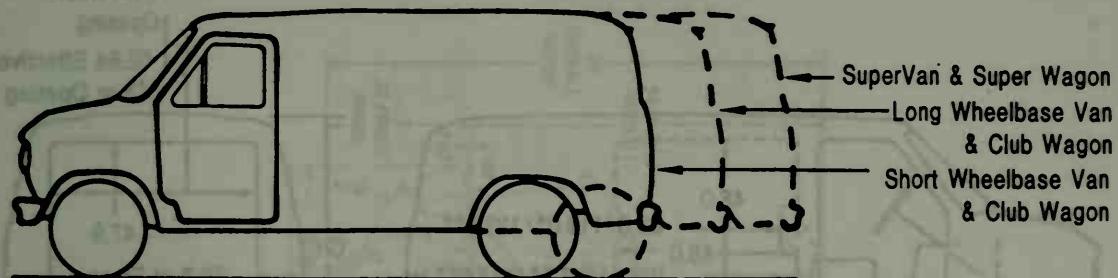


Note: See F-150-350 section for torque specifications.

Body — Sheet Metal

E-150-350

Cargo Van, Display Van, Window Van & Club Wagon Sizes

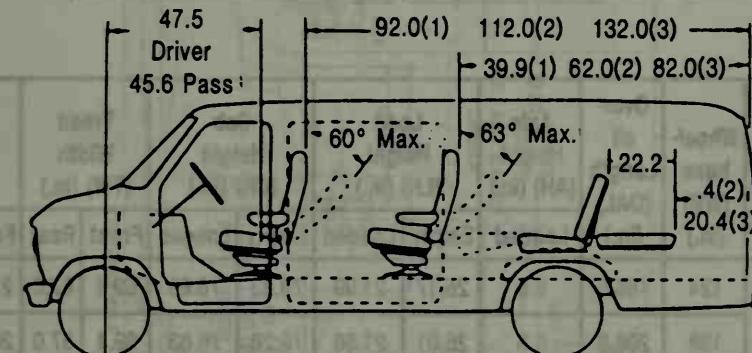


| Model | Wheel-Base | Overall Length | Van Cargo Volume:(1) Hinged/Sliding Side Cargo Doors | Availability | | |
|-------------------------------------|------------|----------------|--|---------------------|-------|-------|
| | | | | V-Vans/C-Club Wagon | E-150 | E-250 |
| Short Wheelbase Van & Club Wagon | 124 in. | 186.8 in. | 252/257 cu. ft. | V-C | — | — |
| Long Wheelbase Van & Club Wagon | 138 in. | 206.8 in. | 295/302 cu. ft. | V-C | V-C | V |
| Super Van & Super Wagon | 138 in. | 226.8 in. | 339/347 cu. ft. | — | V | V-C |

(1) Without RH Passenger Seat.

Cargo Vans and Wagons

Captain's Chairs & Seat/Bed Dimensions



(1) 124" wb. Van or Club Wagon.

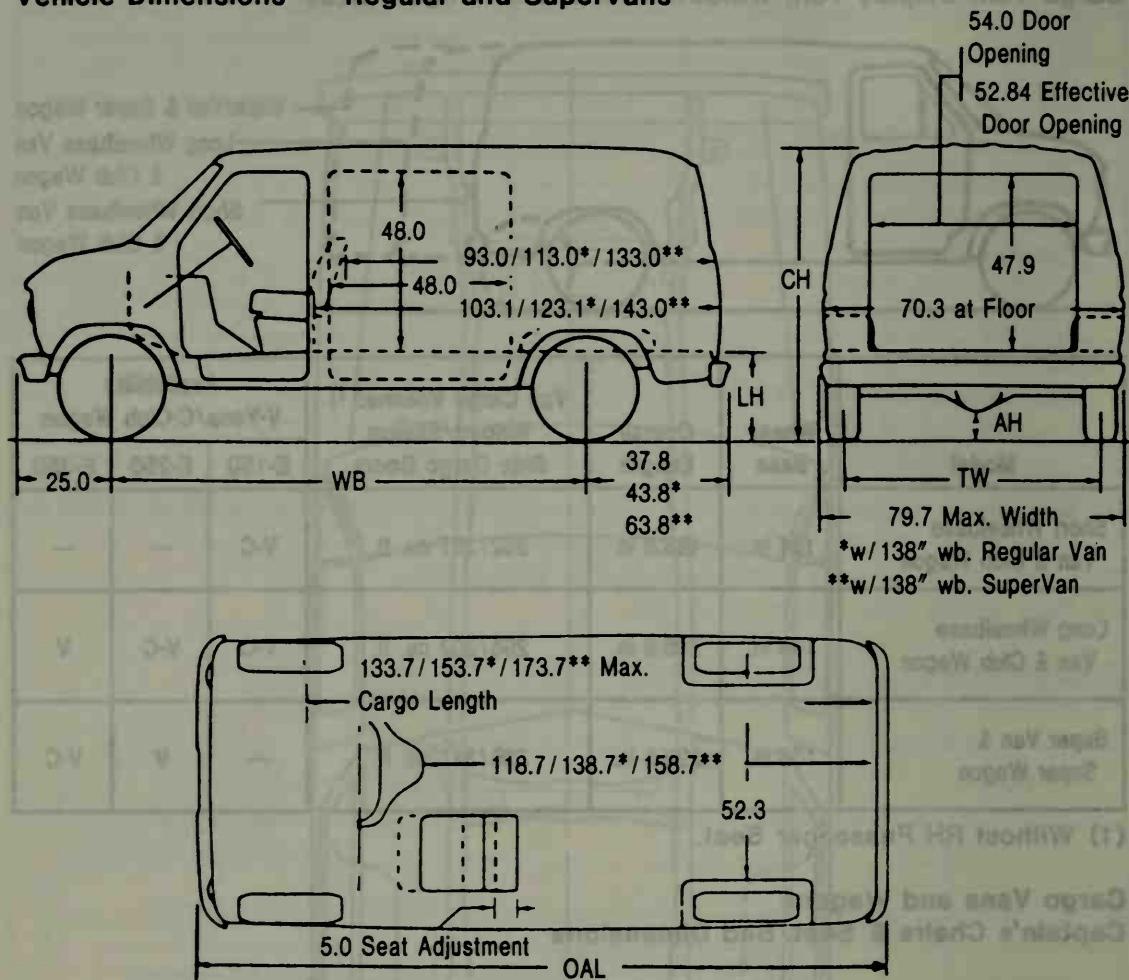
(2) 138" wb. Van or Club Wagon.

(3) Super Van or Super Wagon.

Body — Sheet Metal

E-150-350 — CONT'D

Vehicle Dimensions — Regular and SuperVans

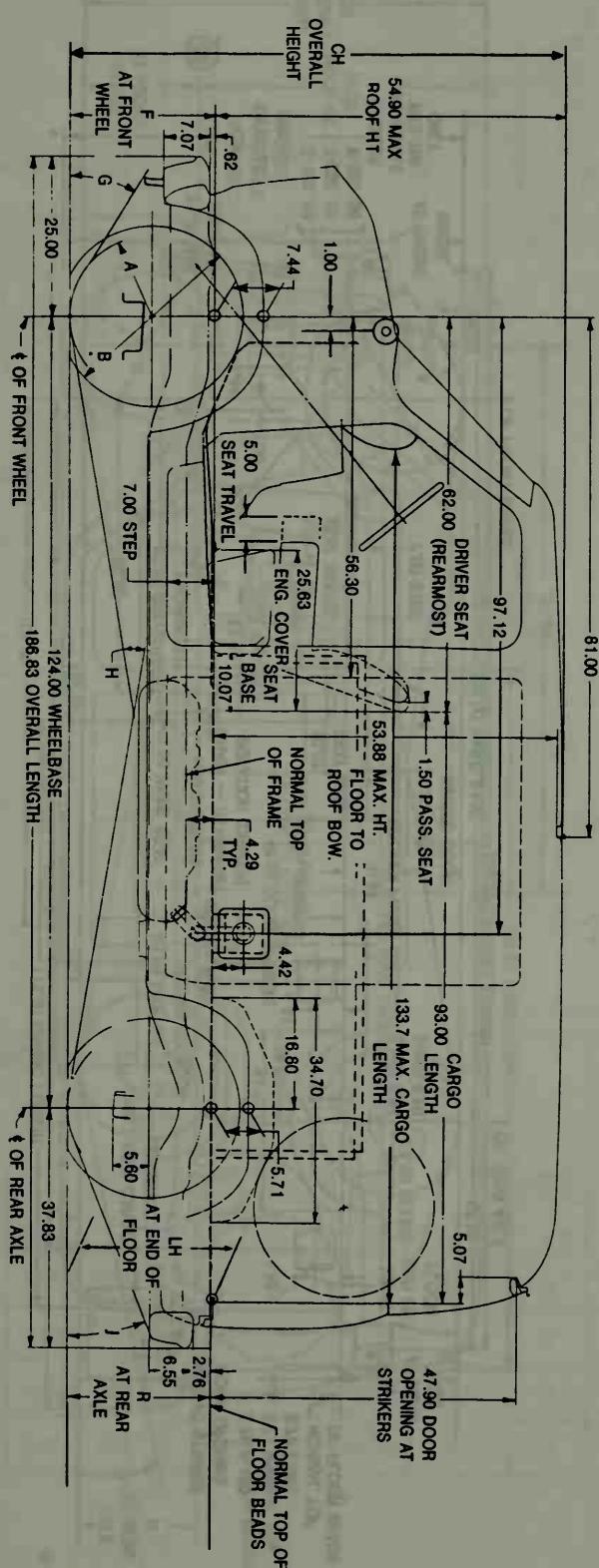


| Model | Series | Wheel-base (WB) (in.) | Overall Length (OAL) (in.) | Axle Height (AH) (in.) | Load Height (LH) (in.) | | Cab Height (CH) (in.) | | Tread Width (TW) (in.) | | Base Curb Weight (lbs.) | | |
|-------|----------|-----------------------|----------------------------|------------------------|------------------------|-------|-----------------------|-------|------------------------|-------|-------------------------|-------|------|
| | | | | | Loaded | Empty | Loaded | Empty | Loaded | Front | Rear | Front | Rear |
| E-150 | Regular | 124 | 186.8 | 6.8 | 25.17 | 21.99 | 79.23 | 76.69 | 69.4 | 67.0 | 2136 | 1584 | 3720 |
| | | 138 | 206.8 | 6.8 | 25.01 | 21.86 | 79.28 | 76.63 | 69.4 | 67.0 | 2092 | 1794 | 3886 |
| | SuperVan | 138 | 226.8 | 7.1 | 26.92 | 23.02 | 80.61 | 77.57 | 69.4 | 67.0 | 2058 | 1981 | 4039 |
| E-250 | Regular | 138 | 206.8 | 7.4 | 29.1 | 24.7 | 82.8 | 79.4 | 68.4 | 66.0 | 2261 | 1885 | 4146 |
| | SuperVan | 138 | 226.8 | 8.0 | 29.5 | 25.5 | 83.1 | 80.1 | 68.4 | 66.0 | 2218 | 2256 | 4474 |
| E-350 | Regular | 138 | 206.8 | 7.4 | 32.0 | 26.49 | 85.79 | 80.94 | 68.4 | 66.0 | 2343 | 2099 | 4442 |
| | SuperVan | 138 | 226.8 | 7.4 | 32.25 | 26.69 | 84.90 | 81.01 | 68.4 | 66.0 | 2298 | 2315 | 4613 |

Body — Sheet Metal

BODY SPECIFICATIONS — E-150 CARGO VAN — 124 INCH WHEELBASE

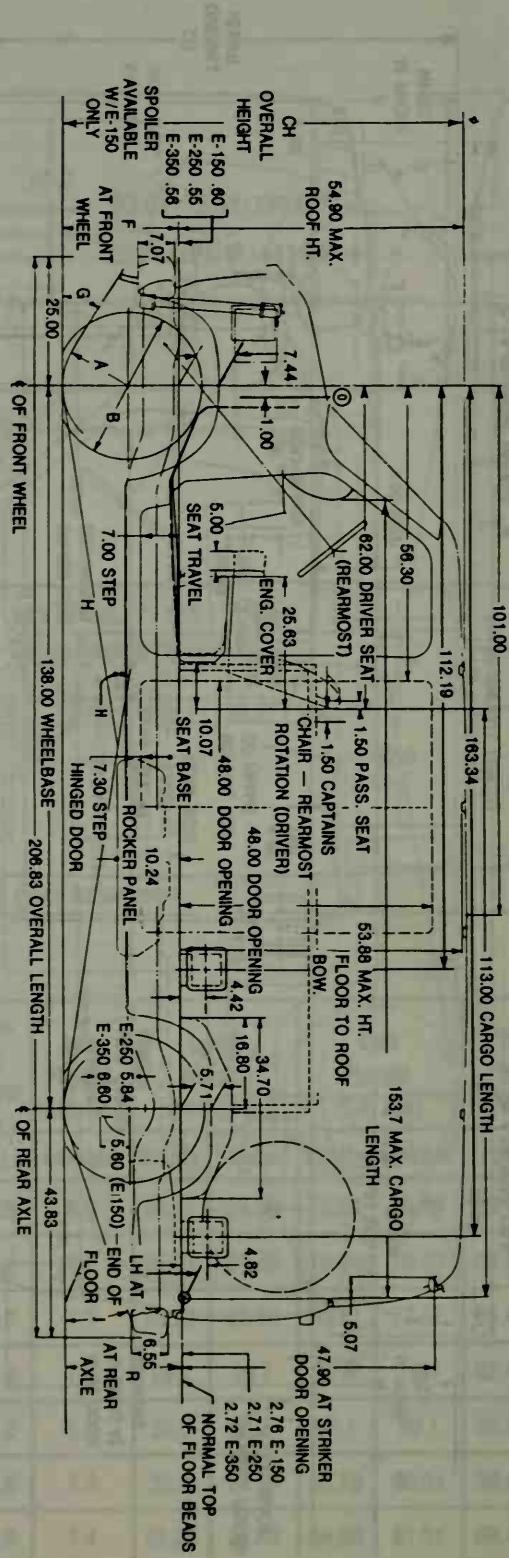
E-150-350 — Cont'd



Body — Sheet Metal

BODY SPECIFICATIONS — E-350 CARGO VAN — 138 INCH WHEELBASE

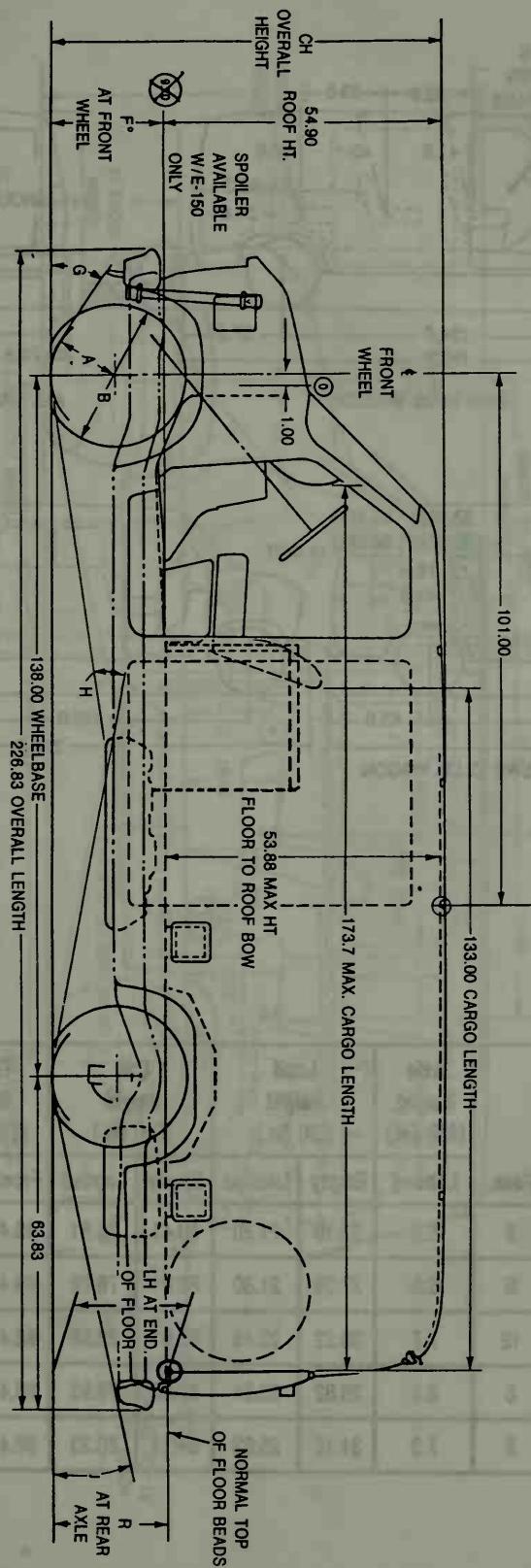
E-150-350 — Cont'd



Body — Sheet Metal

BODY SPECIFICATIONS — E-150-350 SUPER VAN — 138 INCH WHEELBASE

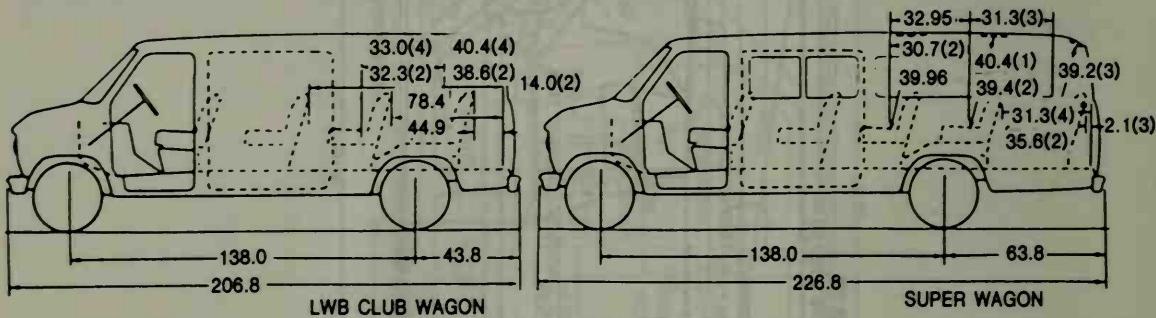
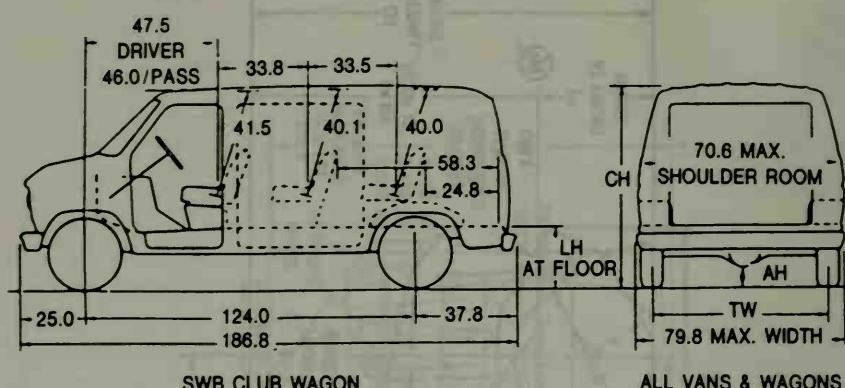
E-150-350 — Cont'd



Body — Sheet Metal

BODY SPECIFICATIONS — CLUB WAGON/SUPER WAGON

E-150-350 — Cont'd



(1) w/11 and/or 15 Passenger

(2) w/12 Passenger

(3) w/15 Passenger

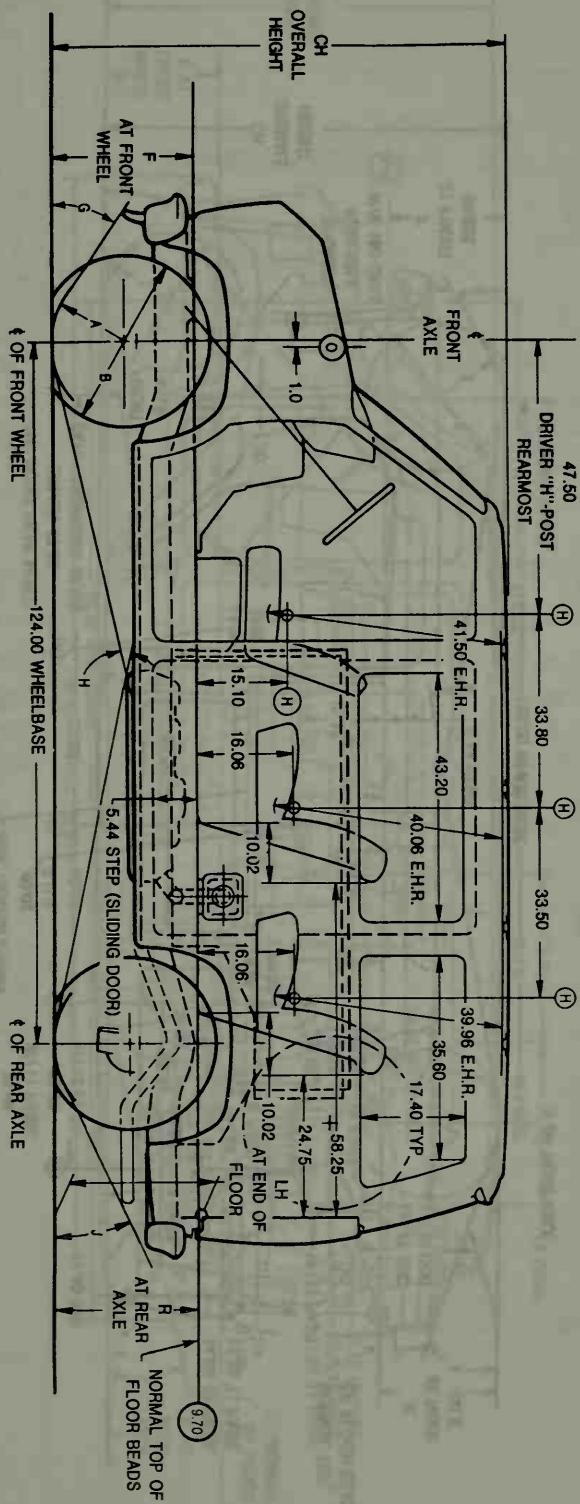
(4) w/11 Passenger

| Model | Wheel-base (WB) (in.) | Pass. | Axle Height (AH) (in.) | Load Height (LH) (in.) | | Cab Height (CH) (in.) | | Tread Width (TW) (in.) | | Base Curb Weight (lbs.) | | |
|---------------|-----------------------------|-------|------------------------------|------------------------------|--------|-----------------------------|--------|------------------------------|------|----------------------------|------|-------|
| | | | Loaded | Empty | Loaded | Empty | Loaded | Front | Rear | Front | Rear | Total |
| E-150 Regular | 124 | 5 | 6.8 | 27.19 | 21.80 | 80.41 | 76.81 | 69.4 | 67.0 | 2236 | 1711 | 3947 |
| | 138 | 5 | 6.8 | 27.29 | 21.80 | 80.81 | 76.79 | 69.4 | 67.0 | 2221 | 1913 | 4134 |
| E-250 Regular | 138 | 12 | 7.7 | 28.22 | 23.43 | 82.91 | 28.96 | 68.4 | 66.0 | 2403 | 2470 | 4873 |
| E-250 Super | 138 | 5 | 8.1 | 28.82 | 23.54 | 82.58 | 78.93 | 68.4 | 66.0 | 2338 | 2514 | 4852 |
| E-350 Super | 138 | 5 | 7.3 | 31.15 | 25.63 | 84.11 | 80.33 | 68.4 | 66.0 | 2385 | 2538 | 4923 |

Body — Sheet Metal

BODY SPECIFICATIONS — E-150 CLUB WAGON — 124 INCH WHEELBASE

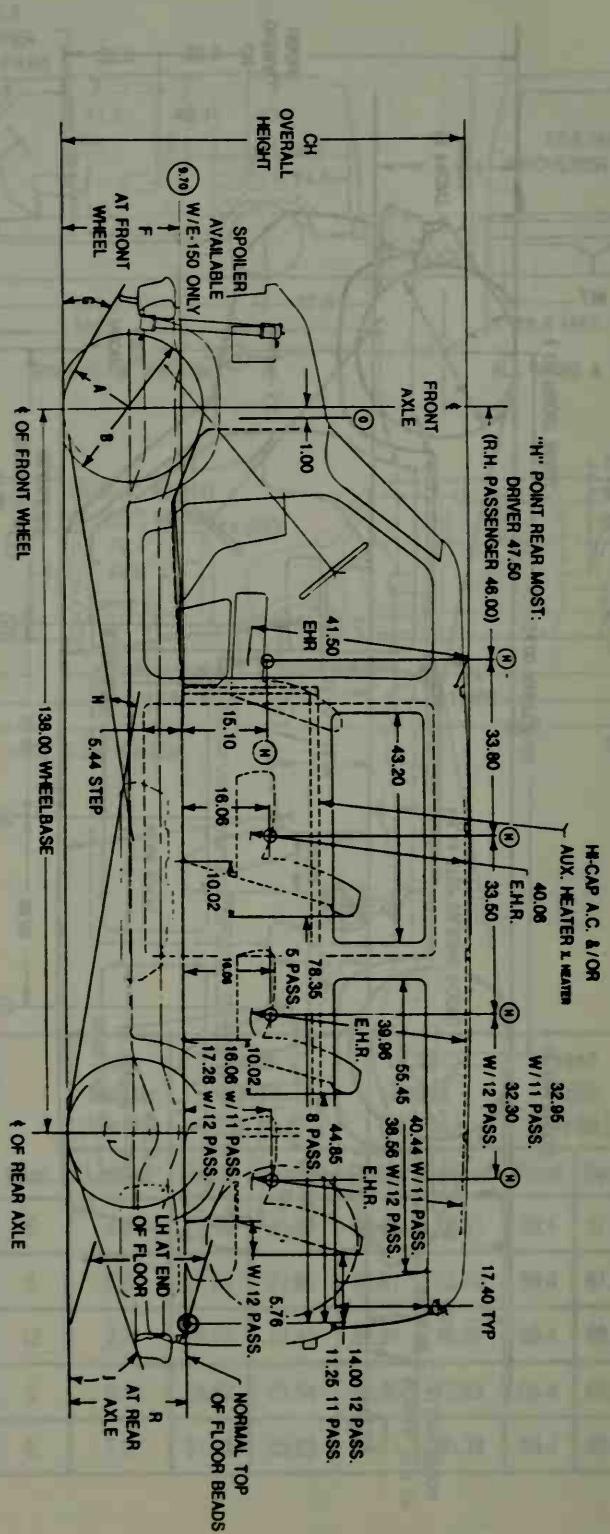
E-150-350 — Cont'd



Body — Sheet Metal

BODY SPECIFICATIONS — E-150/250 CLUB WAGON — 138 INCH WHEELBASE

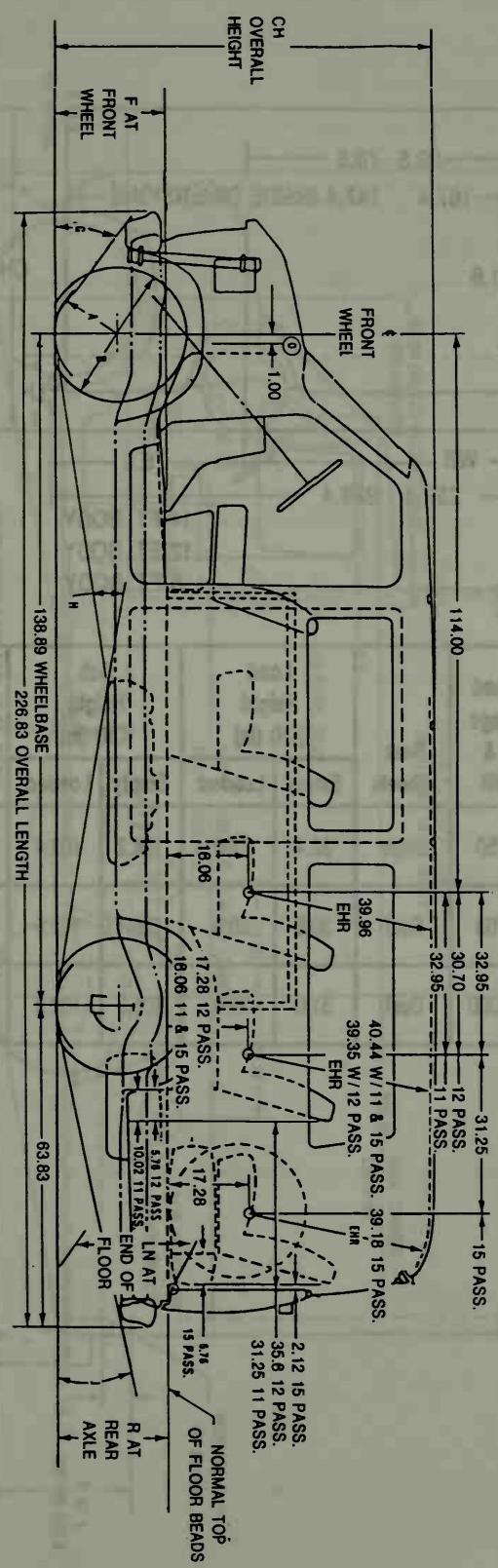
E-150-350 — Cont'd



Body — Sheet Metal

BODY SPECIFICATIONS — E-250/350 SUPER WAGON — 138 INCH WHEELBASE

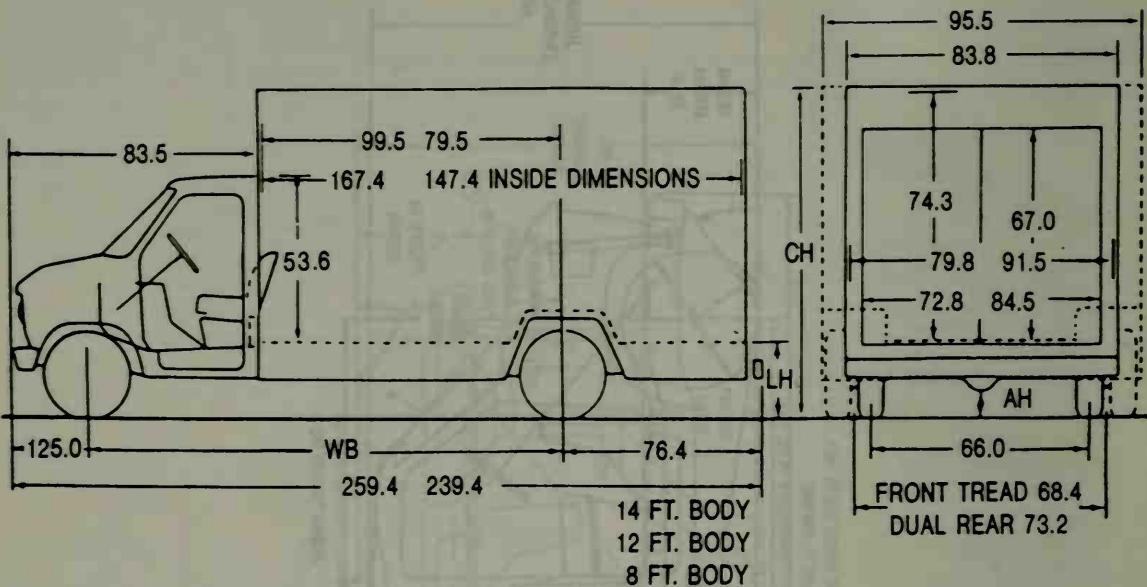
E-150-350 — Cont'd



Body — Sheet Metal

BODY SPECIFICATIONS — PARCEL DELIVERY VANS

E-150-350 — Cont'd

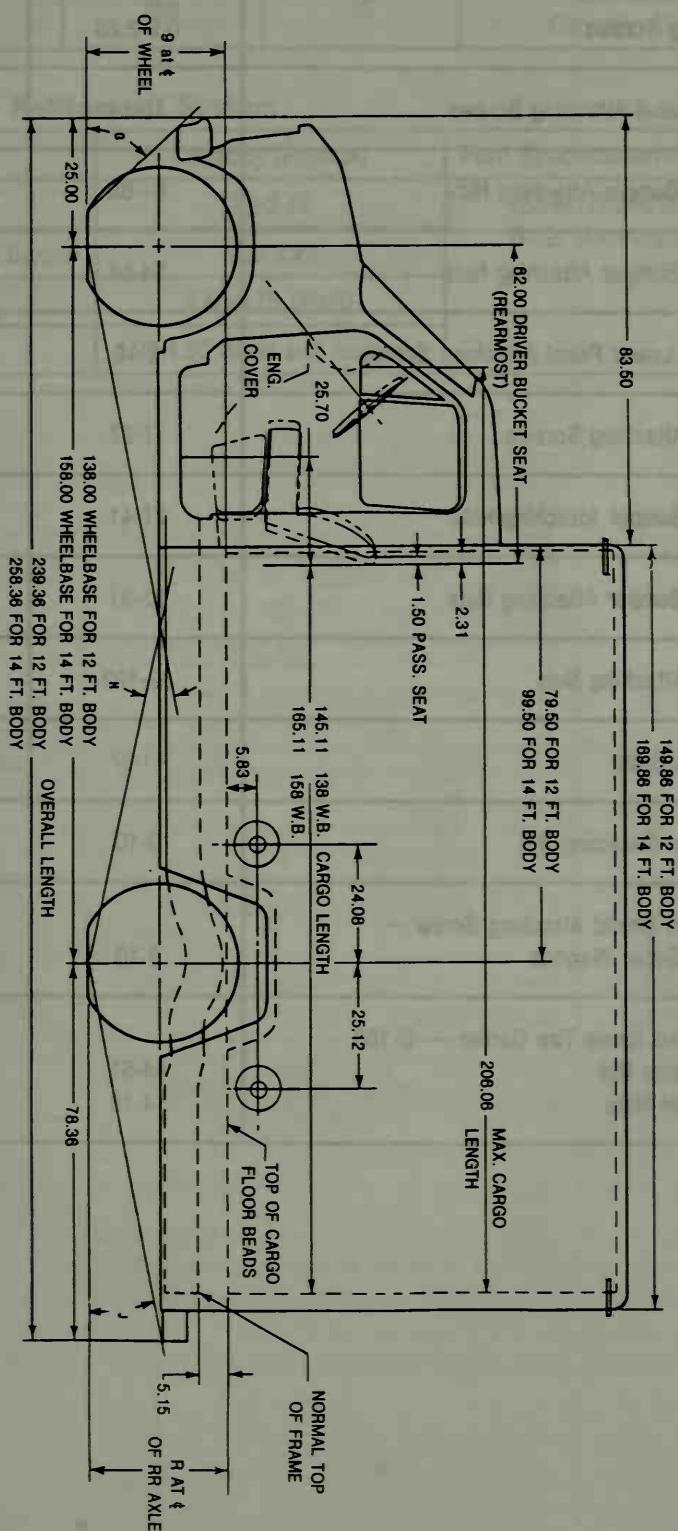


| Model | Wheel Base (WB) (in) | Payload Package No. & GVWR | Rear Wheels | Load Height (LH) (in) | | Cab Height (CH) (in) | | Axle Height (AH) Loaded | Base Curb Weight (lbs.) | | |
|-------|----------------------|----------------------------|-------------|-----------------------|--------|----------------------|--------|----------------------------|-------------------------|------|-------|
| | | | | Empty | Loaded | Empty | Loaded | | Front | Rear | Total |
| E-350 | 138 | 1/8750 | Single | 32.4 | 28.0 | 106.2 | 103.4 | 7.4 | 2349 | 3046 | 5395 |
| | | 2/9700 | Dual | 30.8 | 28.0 | 105.1 | 102.6 | 7.2 | 2242 | 3520 | 5762 |
| | 158 | 3/10,000 | Dual | 31.0 | 28.0 | 105.0 | 102.8 | 6.4 | 2436 | 3601 | 6037 |

Body — Sheet Metal

BODY SPECIFICATIONS — E350 PARCEL DELIVERY VAN — 138 INCH AND 158 INCH WHEELBASE

E-150-350 — Cont'd



Body — Sheet Metal

E-150-350 — CONT'D

Torque Specifications

| Description | N·m | Ft-Lb |
|--|----------------|----------------|
| Grille Attaching Screws | 0.9-2.25 | 8-20 (In-Lb) |
| Support and Panel Attaching Screws | 10-14 | 7-11 |
| Painted Front Bumper Attaching Nuts | 61-88 | 45-65 |
| Chrome Front Bumper Attaching Nuts | 34-54 | 25-40 |
| Grille Opening Lower Panel Attaching Screws | 8-18 | 6-14 |
| Front Fender Attaching Screws | 17-27 | 12-20 |
| Painted Rear Bumper Attaching Nuts | 27-41 | 20-30 |
| Chrome Rear Bumper Attaching Nuts | 23-31 | 17-23 |
| Step Bumper Attaching Nuts | 82-122 | 60-90 |
| Body to Frame Bolts | 41-67 | 30-50 |
| Upper Absorber Retaining Nut | 9-10 | 6-8 |
| #2 Body Mount Shield Attaching Screw — SuperVans, Super Wagons | 8-10 | 6-8 |
| Outside Mounted Spare Tire Carrier — E-150 Arm to Insulator Nut Reinforcement Nuts | 44-51 14-18 | 32-38 10-14 |

Refill Capacities

Air Conditioning Compressor

| Compressor | Capacity | | Ford Specification/ Ford Part Number |
|------------|----------|-----|---|
| | MI. | Oz. | |
| FS-6 | 296 | 10 | ESA-M2C31-A-500 Viscosity/C9AZ-19577-B |

Air Conditioning Refrigerant System

| Vehicle | Capacity (Pounds) | Ford Specification/Ford Part Number |
|--------------------------|--------------------------------|---|
| Ranger | 2.5-2.75 | ESA-M17B2-A/D3AZ-19B519-A R-12, Motorcraft YN1-A, YN-7 |
| F-150 — F-350 and Bronco | 3.00-3.25 | |
| E-150 — E-350 | 3.50-3.75 (Main) | |
| E-150 — E-350 | 4.25-4.50 (Main and Auxiliary) | |

Refill Capacities

COOLING SYSTEM

| Engine | Truck Model/Type | Equipment | Approximate Capacity | | |
|--------------------------|-----------------------|--|----------------------|-----------------|--------|
| | | | U.S. Quarts | Imperial Quarts | Liters |
| 2.0L I-4 | Ranger | 4-Speed Manual — Standard Cooling | 6.5 | 5.4 | 6.15 |
| | | 4-Speed Manual — Extra Cooling | 6.5 | 5.4 | 6.15 |
| | | 4-Speed Manual — A/C | 7.2 | 6.0 | 6.8 |
| | | 4-Speed Manual — Standard Cooling | 6.5 | 5.4 | 6.15 |
| | | 4-Speed Manual — Extra Cooling | 6.5 | 5.4 | 6.15 |
| | | Automatic — Standard Cooling | 6.5 | 5.4 | 6.15 |
| | | Automatic — Extra Cooling | 6.5 | 5.4 | 6.15 |
| | | 4-Speed Manual — A/C | 7.2 | 6.0 | 6.8 |
| | | Automatic — A/C | 7.2 | 6.0 | 6.8 |
| | | 4-Speed Manual — Standard Cooling | 10.0 | 8.4 | 5 |
| | | 4-Speed Manual — A/C Cooling | 10.0 | 8.4 | 5 |
| | | 4-Speed Manual — Super A/C Cooling | 10.7 | 8.9 | 1.1 |
| 2.2L Diesel | | All Transmissions — Standard and Super w/o A/C | 7.2 | 6.0 | 6 |
| | | All Transmission — A/C and Super with A/C | 7.8 | 6.5 | 4 |
| 4.9L (300 CID) I-6 | F-150/350 & Bronco | Manual Trans. — Standard and Extra Cooling | 13 | 10 | 12 |
| | | Auto. Trans. — Standard and Extra Cooling | 13 | 10 | 12 |
| | | Manual/Auto. Trans. — A/C and/or Super Cool | 14 | 11 | 13 |
| 5.0L (302 CID) V-8 | F-150/250 & Bronco | Manual/Auto. Trans. — Standard Cooling; Manual Trans. — Extra Cooling | 13 | 10 | 12 |
| | | Auto. Trans. — Extra Cooling; Manual/Auto. Trans. — A/C Super Cool | 14 | 11 | 13 |

Refill Capacities

COOLING SYSTEM

| Engine | Truck Model/Type | Equipment | Approximate Capacity | | |
|--------------------------|---|---|----------------------|-----------------|--------|
| | | | U.S. Quarts | Imperial Quarts | Liters |
| 5.8L (351 CID) | F-150/350 & Bronco | Manual Trans. — Standard Cooling & Extra Cooling | 15 | 12.5 | 14.2 |
| | | Auto. Trans. — Standard and Extra Cooling | 15 | 12.5 | 14.2 |
| | | Manual/Auto. Trans. — A/C | 16 | 13.3 | 15 |
| | | Manual/Auto. Trans. — Super Cooling | 16 | 13.3 | 15 |
| 4.9L (300 CID) | E-150 — E-350 | With Manual and Automatic Trans. Without A/C (1) (2) | 15 | 12.5 | 14.2 |
| | | With A/C (1) (2) | 17.5 | 14.5 | 16.6 |
| 5.0L (302 CID) V-8 | E-150 — E-350 | Standard Manual Trans. — Extra Cooling (w/o A/C) | 15 | 12.5 | 14.2 |
| | | Standard Manual Trans. with A/C | 17.5 | 14.5 | 16.6 |
| | | Super Cooling Manual Trans. | 18.5 | 15.4 | 17.5 |
| | | Automatic Trans. — Extra Cooling — w/o A/C | 17.5 | 14.5 | 16.6 |
| | | Automatic Trans. with ⁴⁴⁷ and/or Super Cool | 18.5 | 15.4 | 17.5 |
| 5.8L-W (351 CID) | E-150 — E-350 | Manual Trans. — with A/C (1) (2) | 15 | 12.5 | 14.2 |
| | | Automatic Trans. Standard or Extra w/o A/C (1) (2) | 20 | 16 | 19 |
| | | Automatic Trans. with A/C and/or Super Cool | 21 | 17.5 | 20 |
| 6.9L Diesel | F-250 HD, F-350, E-250 HD, E-350 | All Options | 31.0 (3) | 26.0 | 29.3 |
| 7.5L (460 CID) | F-250 HD, F-350 | Manual Trans. — Extra Cooling | 16.5 | 14.0 | 15.5 |
| | | All Other Options | 17.5 | 15.0 | 17.0 |
| 7.5L (460 CID) | E-250 — E-350 | All Options (1) (2) | 28 | 23.3 | 26 |

- (1) Add 1 U.S. quart (or equivalent Imperial quarts or liters) for heater.
- (2) Add 1.8 U.S. quarts (or equivalent Imperial quarts or liters) for auxiliary heater (E-150 — E-350 models).
- (3) Include 5 quarts (or equivalent Imperial quarts or liters) in reservoir bottle.

Refill Capacities

ENGINE OIL — ALL EXCEPT 2.0L AND 2.8L GASOLINE ENGINES

| Engine Displacement | Approximate Engine Oil Capacity | | | | | |
|----------------------|---------------------------------|-----------------------------------|--------------------------------|-----------------------------------|---------------------------|------------------------------|
| | U.S. Quarts With Filter Change | U.S. Quarts Without Filter Change | Imp. Quarts With Filter Change | Imp. Quarts Without Filter Change | Liters With Filter Change | Liters Without Filter Change |
| 4.9L (300 CID) I-6 | 6 | 5 | 5 | 4.2 | 5.6 | 4.7 |
| 5.0L (302 CID) V-8 | 6 | 5 | 5 | 4.2 | 5.6 | 4.7 |
| 5.8L (351 CID) W-V-8 | 6 | 5 | 5 | 4.2 | 5.6 | 4.7 |
| 7.5L (460 CID) V-8 | 6 | 5 | 5 | 4.1 | 5.6 | 4.7 |
| 6.9L Diesel | 10 | 9 | | 9.7 | | 8.5 |

Engine Oil Refill Capacities 2.0L and 2.8L Gasoline Engines

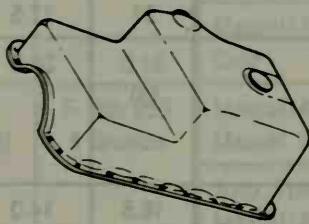
| Engine | U.S. Quarts | Imperial Quarts | Liters |
|-----------------|-------------|-----------------|--------|
| 2.0L (122 CID) | 5.0 | 4.2 | 4.7 |
| 2.3L (140 CID)② | 5.0 | 4.2 | 4.7 |
| 2.3L (140 CID)③ | 6.0 | 5.0 | 5.6 |
| 2.8L (171 CID) | 5.0 | 4.2 | 4.7 |

① Includes one quart for filter replacement.

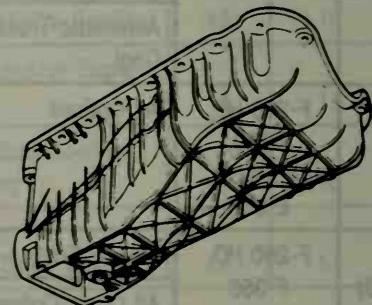
② With cast aluminum oil pan see below.

③ With stamped steel oil pan see below.

NOTE: Refer to checking engine oil level for oil pan identification.



③ FRONT OF VEHICLE ➔



② FRONT OF VEHICLE ➔

NOTE: Vehicles equipped with a 2.3L engine will have one of the two oil pans shown. When changing oil, the refill capacity for the stamped steel pan 3 is 6 quarts (including one quart for filter replacement).

Refill Capacities

FUEL TANKS

Ranger

| Vehicle | Location | Tank Capacity |
|-----------|------------------|---------------|
| Ranger | Midship LWB | 57.54 (15.2) |
| | Midship SWB | 64.35 (17.0) |
| | Aft of Rear Axle | 49.2 (13.0) |
| Bronco II | Aft of Rear Axle | 87.05 (23.0) |

E-, F-150-350, Bronco

| FUEL TANKS | | | | |
|------------------------|--------------------|----------------------|--------------------------------|------------------------------------|
| Series | Wheelbase (in.) | Location | Tank Capacity gal. (liters) | Available Tank Combinations (1) |
| STANDARD FUEL TANKS | | | | |
| Ranger 4x2/4x4 | 107.9 | Midship | 15.2 (57.5) | A |
| Ranger 4x2 Pickup | 113.9 | Midship | 15.2 (57.5)(6) | |
| Ranger 4x2 Chassis Cab | 113.9 | Midship | 15.2 (57.5)(11) | |
| Ranger 4x4 | 113.9 | Midship | 17 (64) | |
| Bronco II | 94 | Behind rear axle(10) | 23 (87) | |

Refill Capacities

E-, F-150-350, Bronco

FUEL TANKS — CONT'D

| Series | Wheelbase (in.) | Location | Tank Capacity gal. (liters) | Available Tank Combinations |
|--|--------------------|----------------------|--------------------------------|--------------------------------|
| STANDARD FUEL TANKS — CONT'D | | | | |
| F-150 incl. 4x4 | 116.8 | Midship | 16.5 (62) | |
| F-150/250 SuperCab | 138.8 | Midship | | |
| F-150/250/350 incl. 4x4 | 133 | Midship(2) | | |
| F-150/250 SuperCab incl. 4x4 | 155 | Midship | | B |
| F-250/350 Chassis Cab | 136.8 160.8 | Midship | 19 (72)(5) | |
| F-350 Crew Cab 4x2/4x4 | 168.4 | Midship | | |
| Bronco | 104.7 | Behind rear axle(10) | 32 (121) | — |
| E-150 Vans & Wagons | 124 | Midship | 18 (68) | — |
| E-150/250/350 Van, Wagons & Other Vehicles | 138(7) 158 | Behind rear axle | 22.1 (83) | C |
| OPTIONAL AUXILIARY FUEL TANKS | | | | |
| Ranger 4x2/4x4 | 107.9 113.9 | Behind rear axle | 13 (49.2) | A |
| All F-Series | All(2,3,4) | Behind rear axle | 19 (72) | B |
| F-350 DRW Chassis Cab | 136.8 160.8 | Midship | 20 (75)(8) | — |
| E-150/250/350 Vans, Wagons & Other Vehicles | 138 158 | Midship | 18 (68)(9)(12) | C |

- (1) Matching code letters under "AVAILABLE TANK COMBINATIONS" indicates standard and optional auxiliary fuel tanks which can be used in combination.
- (2) 19-gallon behind-rear-axle fuel tank standard with F-350 dual rear wheel Style-side model, with midship tank available as optional auxiliary fuel tank.
- (3) 19-gallon behind-rear-axle fuel tank available with 136.8", 160.8" and 168.4" wheelbase models as auxiliary tank in addition to standard tank.
- (4) Not available with Flareside pick-up, or with F-350 DRW Chassis Cab 20 Gal. outside-of-frame tank.
- (5) 20-gallon tank with 6.9L V-8 diesel engine.
- (6) 17-gallon tank with optional automatic transmission and 2.3L I-4 engine, or with 2.2L diesel or 2.8L V-6 engines.
- (7) 19.6 gallon tank with 4.9L engine and 4-speed manual overdrive transmission, vans only.
- (8) In lieu of standard tank.
- (9) 17.5 gallon tank w/ 7.5L engine.
- (10) Includes skid plate.
- (11) 17 gallon tank with 2.8L V-6 engine.
- (12) Not available with Chassis Cab models.

Refill Capacities

Manual Steering Gear

| Vehicle | Capacity | | Ford Specification/ Ford Part Number |
|------------------------------|----------|-------|---|
| | MI. | Oz. | |
| Ranger | 300 | 10.2 | ESW-M1C87-A/ C3AZ-19578-A |
| F-150-350 (4x2) E-150-350 | 320 | 11(1) | |

(1) ± 1 oz. (29 ml.)

Power Steering Gear

| Vehicle | Capacity(1) | | Ford Specification/ Motorcraft Part Number |
|---------|-------------|-------|---|
| | Liters | Pints | |
| All | 0.75 | 1.6 | ESW-M2C33-F/ XT-1-QF or XT-1-DF |

(1) Included in pump reservoir fill.

Power Steering Pump

Refill Capacity — All Approximately 1.7 liters (3.6 pints)

Rear and Front Driving Axles

Ranger

| Axle | Liters | Pints | Lubricant Ford Specification/ Ford Part Number |
|---------------------------------|--------|-------|--|
| Rear — 6.75 Inch Conventional | 1.56 | 3.3 | ESP-M2C154-A/ E0AZ-19580-A |
| Rear — 7.5 Inch Conventional | 2.37 | 5.0 | |
| Rear — 7.5 Inch Limited Slip(1) | 2.37 | 5.0 | |
| Front Drive — Dana Model 28(1) | 0.45 | 1.0 | ESW-M2C105-A/ C6AZ-19580-E |

Refill Capacities

REAR AND FRONT DRIVING AXLES — CONT'D

F-150-350, Bronco (Rear Axles, Except as Indicated)

| Axle Model | Vehicle | Approximate Capacity | | |
|--------------------------------|--|----------------------|-------------------|--------|
| | | U.S. Pints | Imperial Pints | Liters |
| Ford Axle — 8.8 Inch Ring Gear | F-150, Bronco(3) | 5.5 | 4.6 | 2.6 |
| | E-F-250 | 5.5 | 4.6 | 2.6 |
| Ford Axle — 9.0 Inch Ring Gear | F-150(3) | 5.5 | 4.6 | 2.6 |
| | E-150(3) | 5.5 | 4.6 | 2.6 |
| Dana 44 IFS — Front(1) | F-150 (4x4), Bronco | 3.6 | 3.0 | 1.7 |
| Dana 44 IFS-HD — Front(1) | F-250 (4x4) | 3.6 | 3.0 | 1.7 |
| Dana 50-IFS — Front(1) | F-350 (4x4) | 3.8 | 3.2 | 1.8 |
| Dana 60 — Rear(2) | E-F-250 — 350 (4x2) | 6.0 | 5.0 | 2.8 |
| Dana 60 — Rear(2) | F-250 — 350 (4x4) Under 8500 GVW | 6.0 | 5.0 | 2.8 |
| Dana 60-5 — Rear(2) | F-250 4x2/4x4 Over 8500 GVW, F-350 — SRW | 6.0 | 5.0 | 2.8 |
| Dana 61-1 — Rear(2) | E-350 SRW | 6.0 | 5.0 | 2.8 |
| Dana 61-2 — Rear(2) | E-250, F-250 (4x2) (4x4) Under 8500 GVW | 6.0 | 5.0 | 2.8 |
| Dana 70 — Rear(2) | F-350 (4x2) | 6.5 | 5.5 | 3.0 |
| Dana 70 — Rear(2) | E-350 | 6.5 | 5.5 | 3.0 |
| Dana 70 HD(2) | F-350 (4x2) | 7.4 | 6.1 | 3.8 |

- (1) Add 2 U.S. ounces of Friction Modifier, C8AZ-19B546-A (EST-M2C118-A) or equivalent to Dana Front Drive Axle with limited slip differential.
- (2) Add 4 U.S. ounces of Friction Modifier, C8AZ-19B546-A (EST-M2C118-A) or equivalent to Dana rear axles with limited slip differentials.
- (3) Add 4 U.S. ounces of Friction Modifier, C8AZ-19B546-A (EST-M2C118-A) or equivalent to Ford locking rear axles.

Refill Capacities

REAR AND FRONT DRIVING AXLES — CONT'D

E-, F-150-350, Bronco

| Transmission Type and Make | Approximate Capacities | | |
|---|-----------------------------|---------------------------------|--------|
| | U.S. Measure (Quarts) | Imperial Measure (Quarts) | Liters |
| 3-Speed (Ford) (1) | 1.75 | 1.4 | 1.6 |
| 4-Speed (Warner T-18) (1) | 3.5 | 2.75 | 3.3 |
| 4-Speed (New Process 435) (1) | 3.5 | 2.75 | 3.3 |
| 4-Speed (New Process 435 without Extension) (1) | 3.25 | 2.6 | 3.0 |
| 4-Speed Overdrive (1) | 2.25 | 1.85 | 2.1 |
| C-5 Automatic (4x2) (4) (3) | 11.5 | 9.2 | 10.9 |
| C-6 Automatic (4x2) (4) (2) | 11.9 | 9.4 | 11.2 |
| Automatic Overdrive (4x2) (4) (2) | 12 | 10.1 | 11.7 |
| C-6 Automatic (4x4) (4) (2) | 13.5 | 10.8 | 12.7 |
| 4-speed (Warner T-19B) | 3.5 | 2.75 | 3.3 |

- (1) When adding fluid, use standard Transmission Lube ESP-M2C83-C (D8DZ-19C547-A), or equivalent.
- (2) When adding fluid, use Motorcraft Automatic Transmission Fluid DEXRON® II (XT-2-QDX), or equivalent.
- (3) When adding fluid, use Motorcraft Automatic Transmission Fluid — Type H or equivalent which meets ESP-M2C166-H (XT-4-H).
- (4) Always use automatic transmission fluid dipstick to determine exact fluid requirement.

Refill Capacities

Transfer Case — 4x4

| Model — Vehicle | Capacity | | | Fluid |
|--|---------------|---------------|--------|-------------------------|
| | U.S. Pints | Imp. Pints | Liters | |
| Borg-Warner 13-50 — Ranger | 3.0 | 2.5 | 1.4 | DEXRON® II/ XT-2-QDX |
| New Process Gear 208 — F-150/250, Bronco | 7 | 5.5 | 3.3 | |
| Borg-Warner 13-45 — F-250/350 | 6.5 | 5.4 | 3.1 | |

Transmission

Ranger

| Transmission Type and Make | Approximate Capacities | | |
|----------------------------|------------------------|---------------------|--------|
| | U.S. Measure | Imperial Measure | Liters |
| 4-5-Speed Manual (1) | (Pints) 3.0 | (Pints) 2.5 | 1.4 |
| Automatic, C-3 (2) | (Quarts) 8.0 | (Quarts) 6.5 | 7.6 |
| Automatic, C-5 (4x2) (3) | (Quarts) 7.5 | (Quarts) 6.0 | 7.1 |
| Automatic, C-5 (4x4) (3) | (Quarts) 7.8 | (Quarts) 6.2 | 7.4 |

- (1) When adding fluid, use standard Transmission Lube ESP-M2C83-C (D8DZ-19C547-A), or equivalent.
- (2) When adding fluid, use Motorcraft Automatic Transmission Fluid DEXRON® II (XT-2-QDX), or equivalent.
- (3) When adding fluid, use Motorcraft Automatic Transmission Fluid — Type H ESP-M2C166-H (XT-4-H), or equivalent.

Fluid and Lubricant Specifications

ALL VEHICLES

| Item | Ford Part No. | Part Name | Ford Specification |
|--|---|-----------------------------------|------------------------------|
| Accelerator Control Kickdown (Automatic 4.9L Six Cylinder) — E-100-350 | C1AZ-19590-B | Multi-Purpose Lubricant | ESA-M1C75-B |
| Accelerator Throttle Lever Ball Stud | C1AZ-19590-B | Multi-Purpose Long Life Lubricant | ESA-M1C75-B |
| Air Conditioning Compressor | C9AZ-19577-B (Motorcraft YN-2) | Refrigerant Oil | ESA-M2C31-A 500 Viscosity |
| Air Conditioning System | D4AZ-19B519-A Motorcraft YN-1A, YN-7 | R-12 Refrigerant | ESA-M17B2-A |
| Body Hinges, Latches, Door Striker Plates and Rotors, Seat Tracks, Door Checks and Tracks, and Hood Latch and Auxiliary Latch | D7AZ-19584-A | Polyethylene Grease | ESR-M1C159-A |
| Brake and Clutch Pedal Pivots and Clevises | — | Engine Oil SAE-10W | ESE-M2C153-C |
| Brake, Hydraulic Clutch Master Cylinders | C6AZ-19542-A or -B | Heavy Duty Brake Fluid | ESA-M6C25-A |
| Disc Brake Caliper Rails | D7AZ-19590-A | Disc Brake Caliper Slide Grease | ESA-M1C172-A |

Fluid and Lubricant Specifications

ALL VEHICLES

| Item | Ford Part No. | Part Name | Ford Specification |
|---|---|---|---|
| Distributor Bushing Oil Cup | — | Engine Oil SAE-10W | ESE-M2C153-C |
| Door Weatherstrips | D7AZ-19553-A | Silicone Lube — Spray | ESR-M13P4-A |
| Drive Shaft, Universal Joints (if equipped with fitting) and Slip Spline | C1AZ-19590-B | Multi-Purpose Long Life Lubricant | ESA-M1C75-B |
| Engine Coolant — All Engines | E2FZ-19549-A | Cooling System Fluid | ESE-M97B44-A |
| Engine Oil — Gasoline Engines | XO-5W30-QSP XO-10W40-QSP XO-10W30-QP XO-20W40-QP XO-30QSD XO-15W40-QSD | Motorcraft Motor Oil 5W30 Super Premium 10W40 Super Premium 10W30 and 20W40 Premium SAE 30 and 15W 30 Super Duty | ESE-M2C153-C and API SF, or SF/CC or SF/CD |
| Engine Oil — Diesel Engine | XO-10W30-QP XO-20W40-QP XO-30-Q | Motorcraft Motor Oil 10W30 and 20W40 Premium SAE 30 Single Weight | ESE-M2C153-B and API SF/CC |
| *Engine Oil Filter (Gas) | FL-1A D9AZ-6731-A | Motorcraft Long Life Oil Filter | ES-E1ZE-6714-AA |
| Exhaust Control Valve | D7AZ-19A501-A | Rust Penetrant and Inhibitor | ESR-M99C56-A |

*Diesel 6.9L FL-784 (E3TZ-6731-A)

Fluid and Lubricant Specifications

ALL VEHICLES

| Item | Ford Part No. | Part Name | Ford Specification |
|--|---------------|-----------------------------------|--------------------|
| Ford Conventional and Traction-Lok Axles, Except 3.00 Ratio Axles (1) | EOAZ-19580-A | Hypoid Gear Lubricant | ESP-M2C154-A |
| Ford 3.00 Ratio (1) Traction-Lok Axles | EOAZ-19580-A | Hypoid Gear Lubricant | ESP-M2C154-A |
| Front and Rear Dana Axles (2) | C6AZ-19580-E | Hypoid Gear Lubricant | ESW-M2C105-A |
| Front and Rear Wheel Bearings (Except Rear Wheel Bearings on Ranger and F-150), Brake and Clutch Pedal Shaft, 4x4 Spindle Needle Bearings | C1AZ-19590-E | Multi-Purpose Long Life Lubricant | ESA-M1C75-B |
| Front Axle Spindle Pins, Steering Column U-Joints, Clutch Linkage Pivots, Parking Brake Linkage Pivots and Clevises, Transmission Control Linkage Pivots | C1AZ-19590-B | Multi-Purpose Long Life Lubricant | ESA-M1C75-B |
| Front Drive Axle Free Running Hubs — 4x4 | C1AZ-19590-B | Multi-Purpose Long Life Lubricant | ESA-M1C75-B |

- (1) Add 4 ounces of EST-M2C118-A Friction Modifier (C8AZ-19B546-A) for complete fill of Ford Traction-Lok Axle.
 (2) Add EST-M2C118-A (Friction Modifier Part No. C8AZ-19B546-A) for complete refill of Dana Limited Slip axles. Add 4 ounces for F-250-350 rear. For Ranger, F-150 and F-250 4x4, add 2 ounces to front axles.

Fluid and Lubricant Specifications

ALL VEHICLES

| Item | Ford Part No. | Part Name | Ford Specification |
|---|--------------------|--|---------------------|
| Front Wheel Free Running Automatic Hublock Brake Bond | E1TZ-19590-A | Automatic Hublock Brake Bond Lubricant | ESL-M1C193-A |
| Lock Cylinders, Spare Tire Padlock | D8AZ-19587-A | Lock Lubricant | ESB-M2C20-A |
| Parking Brake Cable | D2AZ-19581-A | Speedometer Cable Lubricant | ESF-M1C160-A |
| Power Steering Reservoir | XT-1-QF | Motorcraft Type F Automatic Transmission Fluid | ESW-M2C33-F |
| Steering Linkage | D4AZ-19590-A | Steering Linkage Lubricant | ESA-M1C92-A Type II |
| Transfer Case — 4x4 | XT-2-QDX | Motorcraft DEXRON® II Automatic Transmission Fluid | DEXRON® II |
| Transfer Case Front Output Slip Shaft — Ranger | C1AZ-19590-B | Multi-Purpose Lubricant | ESA-M1C75-B |
| Transmission — Automatic — C3 C6 AOD | XT-2-QDX | Motorcraft DEXRON® II Automatic Transmission Fluid | DEXRON® II |
| Transmission — Automatic — C5 | XT-4-H | Motorcraft Automatic Transmission Fluid — Type H | ESP-M2C166-H |
| Transmission — Automatic — Shift Linkage | C1AZ-19590-B | Multi-Purpose Long Life Lubricant | ESA-M1C75-B |
| Windshield Washer Reservoir | C9AZ-19550-A or -B | Ultra-Clear Windshield Washer Solution | ESR-M17P5-A |

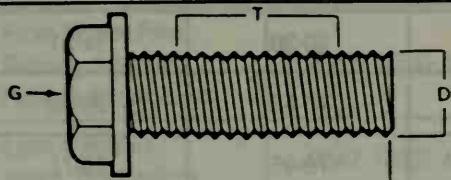
Standard Torque Specifications

| Metric Thread Sizes | N·m | lb·ft |
|---------------------|---------|--------|
| M-6 | 8-12 | 6-9 |
| M-8 | 20-30 | 14-21 |
| M-10 | 40-55 | 28-40 |
| M-12 | 70-95 | 50-71 |
| M-14 | 110-155 | 80-114 |
| Pipe Thread Sizes | | |
| 1/8 | 7-10 | 5-8 |
| 1/4 | 16-24 | 12-18 |
| 3/8 | 31-45 | 23-33 |
| 1/2 | 34-47 | 25-35 |
| U.S. Thread Sizes | N·m | lb·ft |
| 1/4-18 | 11-16 | 8-12 |
| 1/4-20 | 9-12 | 6-9 |
| 5/16-18 | 17-24 | 12-18 |
| 5/16-24 | 19-27 | 14-20 |
| 3/8-16 | 30-43 | 22-32 |
| 3/8-18 | 16-24 | 12-17 |
| 3/8-24 | 37-51 | 27-38 |
| 7/16-14 | 55-74 | 40-55 |
| 7/16-20 | 55-81 | 40-60 |
| 1/2-13 | 75-108 | 55-80 |
| 9/16-18 | 116-162 | 85-120 |

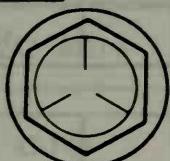
Metric/American Conversions

NOMENCLATURE FOR BOLTS

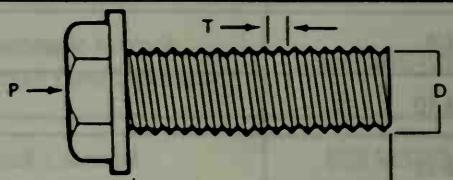
(English) Inch System Bolt, 1/2-13 x 1



G-Grade Marking
(bolt strength)
L-Length, (inches)**
T-Thread Pitch
(thread/inch)
D-Nominal Diameter
(inches)



Metric System Bolt M12-1.75 x 25



P-Property Class*
(bolt strength)
L-Length (millimeters)**
T-Thread Pitch (thread width
crest to crest mm)
D-Nominal Diameter
(millimeters)

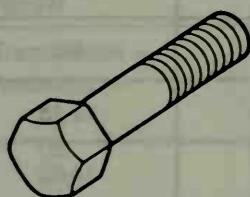


*The property class is an Arabic numeral distinguishable from the slash SAE English grade system.

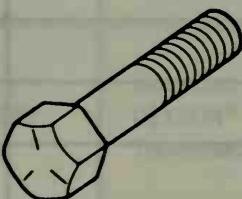
**The length of all bolts is measured from the underside of the head to the end.

BOLT STRENGTH IDENTIFICATION

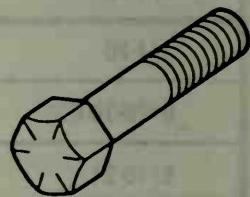
(ENGLISH) INCH SYSTEM



Grade 1 or 2



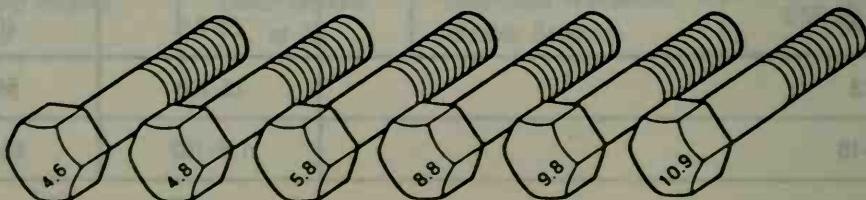
Grade 5



Grade 8

English (Inch) bolts — Identification marks correspond to bolt strength — increasing number of slashes represent increasing strength.

METRIC SYSTEM



Metric bolts — Identification class numbers correspond to bolt strength — increasing numbers represent increasing strength. Common metric fastener bolt strength property are 9.8 and 10.9 with the class identification embossed on the bolt head.

Metric/American Conversions

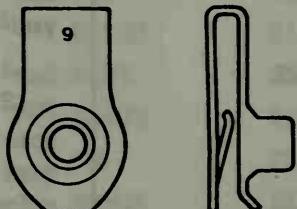
HEX NUT STRENGTH IDENTIFICATION

| (ENGLISH) INCH SYSTEM | | METRIC SYSTEM | |
|--|---|---------------------------------|---|
| Grade | Identification | Class | Identification |
| Hex Nut Grade 5 |  3 Dots | Hex Nut Property Class 9 |  Arabic 9 |
| Hex Nut Grade 8 |  6 Dots | Hex Nut Property Class 10 |  Arabic 10 |
| Increasing dots represent increasing strength. | | | |

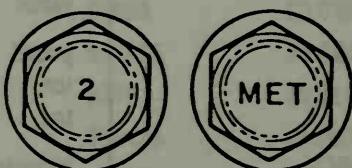
Other Types of Parts

Metric identification schemes vary by type of part, most often a variation of that used of bolts and nuts. Note that many types of English and metric fasteners carry no special identification if they are otherwise unique.

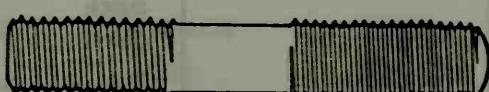
— Stamped "U" Nuts



— Tapping, thread forming and certain other case hardened screws



— Studs, Large studs may carry the property class number. Smaller studs use a geometric code on the end.



CLASS
10.9



CLASS
9.8



CLASS
8.8

English / Metric Conversions

| | multiply | by | for equiv. no. of: |
|--------------------|-----------------------|----------------------------------|--|
| ACCELERATION | Foot/sec ² | 0.3048 | meter/sec ² (m/s ²) |
| | Inch/sec ² | 0.0254 | meter/sec ² |
| TORQUE | Pound-inch | 0.11298 | newton-meters (N·m) |
| | Pound-foot | 1.3558 | newton-meters |
| POWER | horsepower | 0.746 | kilowatts (kw) |
| PRESSURE or STRESS | inches of water | 0.2488 | kilopascals (kPa) |
| | pounds/sq. in. | 6.895 | kilopascals (kPa) |
| ENERGY or WORK | BTU | 1055. | joules (J) |
| | foot-pound | 1.3558 | joules (J) |
| | kilowatt-hour | 3600000. or 3.6×10^6 | joules (J=one W's) |
| LIGHT | foot candle | 10.76 | lumens/meter ² (lm/m ²) |
| FUEL PERFORMANCE | miles/gal | 0.4251 | kilometers/liter (km/l) |
| | gal/mile | 2.3527 | liters/kilometer (l/km) |
| VELOCITY | miles/hour | 1.6093 | kilometers/hr. (km/h) |
| LENGTH | inch | 25.4 | millimeters (mm) |
| | foot | 0.3048 | meters (m) |
| | yard | 0.9144 | meters (m) |
| | mile | 1.609 | kilometers (km) |
| AREA | inch ² | 645.2 | millimeters ² (mm ²) |
| | foot ² | 6.45 | centimeters ² (cm ²) |
| | yard ² | 0.0929 | meters ² (m ²) |
| VOLUME | inch ³ | 0.8361 | meters ² |
| | inch ³ | 16387. | mm ³ |
| | quart | 16.387 | cm ³ |
| | quart | 0.0164 | liters (l) |
| | gallon | 0.9464 | liters |
| | yard ³ | 3.7854 | liters |
| MASS | pound | 0.7646 | meters ³ (m ³) |
| | ton | 0.4536 | kilograms (kg) |
| | ton | 907.18 | kilograms (kg) |
| FORCE | kilogram | 0.90718 | tonne (t) |
| | ounce | 0.4448 | newtons (N) |
| | pound | 9.807 | newtons |
| TEMPERATURE | degree farenheit | 0.556(°F -32) | degree Celsius (°C) |

Decimal and Metric Equivalents

DECIMAL AND METRIC EQUIVALENTS

| Fractions | Decimal In. | Metric mm. | Fractions | Decimal In. | Metric mm. |
|-----------|-------------|------------|-----------|-------------|------------|
| 1/64 | .015625 | .397 | 33/64 | .515625 | 13.097 |
| 1/32 | .03125 | .794 | 17/32 | .53125 | 13.494 |
| 3/64 | .046875 | 1.191 | 35/64 | .546875 | 13.891 |
| 1/16 | .0625 | 1.588 | 9/16 | .5625 | 14.288 |
| 5/64 | .078125 | 1.984 | 37/64 | .578125 | 14.684 |
| 3/32 | .09375 | 2.381 | 19/32 | .59375 | 15.081 |
| 7/64 | .109375 | 2.778 | 39/64 | .609375 | 15.478 |
| 1/8 | .125 | 3.175 | 5/8 | .625 | 15.875 |
| 9/64 | .140625 | 3.572 | 41/64 | .640625 | 16.272 |
| 5/32 | .15625 | 3.969 | 21/32 | .65625 | 16.669 |
| 11/64 | .171875 | 4.366 | 43/64 | .671875 | 17.066 |
| 3/16 | .1875 | 4.763 | 11/16 | .6875 | 17.463 |
| 13/64 | .203125 | 5.159 | 45/64 | .703125 | 17.859 |
| 7/32 | .21875 | 5.556 | 23/32 | .71875 | 18.256 |
| 15/64 | .234375 | 5.953 | 47/64 | .734375 | 18.653 |
| 1/4 | .250 | 6.35 | 3/4 | .750 | 19.05 |
| 17/64 | .265625 | 6.747 | 49/64 | .765625 | 19.447 |
| 9/32 | .28125 | 7.144 | 25/32 | .78125 | 19.844 |
| 19/64 | .296875 | 7.54 | 51/64 | .796875 | 20.241 |
| 5/16 | .3125 | 7.938 | 13/16 | .8125 | 20.638 |
| 21/64 | .328125 | 8.334 | 53/64 | .828125 | 21.034 |
| 11/32 | .34375 | 8.731 | 27/32 | .84375 | 21.431 |
| 23/64 | .359375 | 9.128 | 55/64 | .859375 | 21.828 |
| 3/8 | .375 | 9.525 | 7/8 | .875 | 22.225 |
| 25/64 | .390625 | 9.922 | 57/64 | .890625 | 22.622 |
| 13/32 | .40625 | 10.319 | 29/32 | .90625 | 23.019 |
| 27/64 | .421875 | 10.716 | 59/64 | .921875 | 23.416 |
| 7/16 | .4375 | 11.113 | 15/16 | .9375 | 23.813 |
| 29/64 | .453125 | 11.509 | 61/64 | .953125 | 24.209 |
| 15/32 | .46875 | 11.906 | 31/32 | .96875 | 24.606 |
| 31/64 | .484375 | 12.303 | 63/64 | .984375 | 25.003 |
| 1/2 | .500 | 12.7 | 1 | 1.00 | 25.4 |



Ford Parts and Service Division
Training and Publications Department